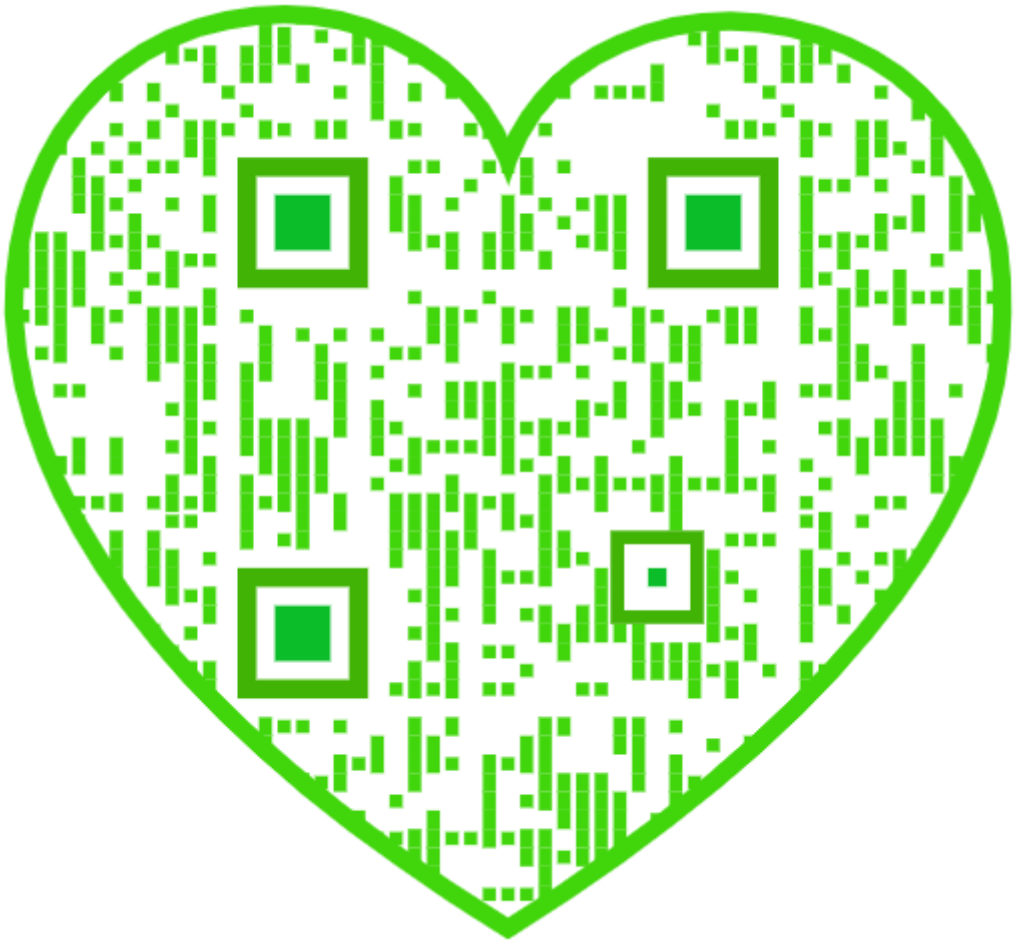

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PRINCIPLES OF ECONOMICS

BY

F. M. TAYLOR, PH. D.

——SECOND EDITION——

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PREFACE TO THE FIRST EDITION

As indicated on the title page, this book is printed for the use of students in the University of Michigan.* Numerous defects, which are of little importance while it is in the hands of teachers who have more or less shared in its preparation, quite unfit it for use by others.

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PREFACE TO THE SECOND EDITION.

The principal changes in this edition consist of an almost complete rewriting of Chapters 8 and 9,—the latter having been divided into Chapters 9 and 10. This rewriting was more complete in the case of the former; but the latter was very considerably changed. The failure to revise Chapters 12 and 13 (now 13 and 14) on the basis of the rewriting of 8 and 9 gives rise to some inconsistencies; but all or nearly all of these are formal rather than material. I have been much disappointed at not having finished a thorough revision of Chapter 13 (now 14); but it proved quite impossible to do so. I hope to have such a revision ready for next year's edition. Besides the above, the most important change is the remodelling of some pages in Chapter 4. A good many lines have been reset in order to eliminate minor errors.

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PRINCIPLES OF ECONOMICS

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INTRODUCTION.

It is a commonplace of which we need only to be reminded that one of the most characteristic marks of a sentient being like man is to have **wants,**—we might almost say that to feel wants and secure their satisfaction is the very essence of living. It is hardly less a commonplace that the great majority of our wants depend for their satisfaction on our disposal over certain **material objects** or conditions—material goods. Hunger can be satisfied only by material food, the need for shelter only by material houses, the desire for pleasure-riding only by material vehicles, and so on. There are, of course, some wants, such as the craving for affection from our fellows, or the religious longings, which depend on psychological, or anyhow some sort of immaterial, conditions. But these are comparatively few; and even they are very closely tangled up with material things.

But not only is the satisfaction of our wants dependent on material goods, it is further true that most of these material goods are *obtainable only in exchange for something,*—some other good relinquished or labor or other form of sacrifice supplied. In ordinary language they are said to cost something; the economist commonly expresses the same fact by saying that they have **exchange value**—they command a price. Such goods are designated generically **wealth.** They are also called economic goods in contrast with free goods, such as air and sunlight, which are commonly obtainable without any cost.

It is a fact obvious to every one that wealth is a thing which absorbs a very large amount of our time, thought, and effort. We are producing or consuming some of it almost all day long. Exchanging it is also a conspicuous phenomenon of every day life. Further, a considerable part of our effort is given to preserving it from loss or deterioration. Again, our sentiments toward wealth are notable facts of our psychic experience. In particular, we prize it, attach a significance to it, have a conscious realization of its importance to us,—a fact expressed by saying that wealth has individual or subjective value. *All these and many other facts, happenings, relations, connected with wealth or economic goods, we call* **economic phenomena.** These

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phenomena constitute the subject matter of Political Economy or Economics, just as another set of phenomena constitute the subject matter of Chemistry, another set the subject matter of Physics, and so on.

The preceding paragraph brought us to something like a definition of economic phenomena. That definition, however, would need considerable limitation. *Not all the facts, relations, and happenings connected with wealth can properly be included under economic phenomena.* On the contrary, much the larger part of them belong, in accepted usage, to other sciences. For example, wheat is of course wealth and gives rise to many phenomena which are strictly economic. But it also gives rise to phenomena which are physical, chemical, botanical, agricultural, and so on. In short, *things are economic only as looked at in one special, narrow, way.* In the very strictest sense, *they are economic only when viewed as possessing value.* However, such strict limitation of our field as this is impracticable. First, there are certain very general phases of the technological side of wealth which would naturally be treated only in some science *having a more general character* than such industrial sciences as agriculture, mining, manufacture, and so on; and, up to the present, political economy has been this general science. Secondly, a fair knowledge of these technological matters, as viewed from the economic standpoint, is absolutely essential to an intelligent study of the most important of the strictly economic problems. In fact, we shall find it necessary, as the students of other sciences do, to permit ourselves considerable latitude in the use of this and other terms. "Economic" will sometimes include almost everything connected with wealth. At other times it will be used in the very restricted sense indicated above. In still other connections it will have some meaning lying between these extremes.*

The foregoing discussion of economic phenomena has brought out the point that things are economic only when looked at in one special way. To emphasize this phase of the matter

*It is important for the student to learn early in his career that there is no possibility of defining the limits of economics or any other science with absolute precision. There are no precise limits to the field of any science; and the effort to set up such limits is likely to result in a pedantic narrowness quite inconsistent with the truly scientific spirit. It is still true, however, that the general character of the phenomena dealt with in any particular science can be, and ought to be, fairly well comprehended at the outset.

still further, it should be added that there is an economic aspect of many matters which the public generally and even many economists are wont to look on as quite remote from the economic world. Thus, the ministrations of religion seem very far removed from those things which are commonly thought of as wealth, such as bread, meat, houses, and so on. But, in truth, these strongly contrasted things are really in the same class. Bread, meat, houses, and so on have an economic character, not because they satisfy very material, everyday wants, but because in view of all the conditions of the case *they have value*—have to be paid for. And just so the ministrations of the clergy have an economic character because they have to be paid for. Our science, therefore, has to do with almost everything high or low, great or little, but only on one side of that thing, viz., the one which we call its economic side.

In the second paragraph back, we spoke of economic phenomena as forming the subject matter of Political Economy just as certain other phenomena form the subject matter of Chemistry, still others that of Physics, and so on. We perhaps ought to note one point of difference between economic phenomena and the others alluded to. The latter belong to a general group which is in the strictest sense natural, *i.e.,* not modified through conditions fixed by men. Economic phenomena, in contrast, belong to a group which are in no small degree artificial, *i.e.,* influenced by conditions of human origin. Of course all phenomena are natural in the broadest sense of the term. Thus, it is natural for men to play, hence natural for them to invent apparatus and arrange conditions for play, hence natural to invent games of cards, form card clubs and so on. But, obviously, some things are natural in a fuller and deeper sense than are others. Thus a state is more truly a natural organization than is a card club. So the family is even more truly natural than is the state. Now, many economic relations are among the most truly natural and inevitable which can be formed; many economic phenomena would be just like those we are familiar with in the same connections, even if we lived like Crusoes or, at the opposite extreme, like a communistic society. But, in contrast with these, not a few economic phenomena would be very different from what they are now, provided certain legal changes were introduced. Thus, the

amount of wealth enjoyed by many persons would be quite different if the state owned all the land. So, it is probable that not a few more or less considerable changes in prices would take place, if all undertaking of production were left to the state. Again, to permit laborers to be owned like beasts of burden would surely modify many important economic phenomena. The preceding illustrations of artificial economic conditions were cases of formal legislation. But it is plain that such conditions can be brought about by custom, convention, formal agreements, and so on. Thus, a really general boycott of manufacturers who employed non-union laborers would be an artificial condition of sufficient significance to influence wages and employment quite seriously.

This discussion of artificial conditions quite naturally suggests a conception which will be of much importance in our future study; I mean the conception of *an economic order, i.e., a system or totality of conditions natural, legal, customary, etc., under which economic goods—wealth—are brought into existence, distributed, and consumed.* Many such economic orders might be conceived, though there are only a few principal types. But our chief business is with *the existing economic order,* the one at present dominant. Our special task as students of economics is to ascertain the leading facts of this order and the principles or natural laws governing economic phenomena under this order.

The preceding will suffice to give the student fairly adequate ideas as to the nature of economic phenomena. It surely is hardly necessary to remark that these phenomena present problems of great interest and importance. For some of these problems we shall have to admit that there is not now, and perhaps never will be, any complete solution. In not a few other cases, the matter requires only careful and patient study. At the very worst, we shall get a considerable amount of knowledge which is quite certain and more or less useful. This perhaps sounds too optimistic, in view of the fact that we often hear people who are seemingly quite intelligent declare that there are no economic principles, that there is no economic science, that in economic matters we could not make the smallest prediction with any hope of its being fulfilled. Now, this is very silly if intended to be taken seriously. Any fairly intelligent person can work out on the spur of the moment many examples

of possible predictions in economic matters which would certainly be fulfilled. For example, if there should be a great falling off in wheat production next year, the price would certainly rise. If, by the introduction of new methods, the cost of producing almost any manufactured article were to fall, say, fifty per cent.—monopoly being shut out—the price of such article would also fall. If the price of aluminum should decline, say, fifty per cent., there would doubtless take place a great extension of its use in the arts. If the government should begin to coin freely both gold and silver, putting only sixteen times as much silver into that kind of coin as it does of gold into that kind when on the open market an ounce of gold is worth, say, forty ounces of silver, the silver would surely get the place of standard money while gold would go to a premium and rapidly disappear from circulation. And so one might go on. In short, economic phenomena, like any other phenomena, are governed by natural laws. If the particular group of phenomena in question are of such a nature that several almost equal forces are interacting. it may be impossible to anticipate the resultant effect, just as in complicated natural or physical sciences like physiology or meteorology. But, in other cases when only one or two of the forces in operation are of any considerable significance, it will be comparatively easy to ascertain the probable outcome of the totality of conditions.

On account of the very great practical significance of economic matters to every person, the student is generally tempted to make immediate and confident application of every bit of economic knowledge which he may acquire. Such procedure is not justified in any science; since, whatever the science one is studying, some time must be spent acquiring those most general principles the actual working of which, though very fundamental, is, after all, much obscured by the operation of more superficial forces. In the case of economic phenenoma, this too hasty application of fundamental principles to specific cases is even less justified than elsewhere, because of the great number of economic and non-economic forces, which are simultaneously acting at any given moment and which make the accurate disentangling of causes almost impossible. It is, therefore, quite important that the student should exercise much self-control at this point. In particular, he is urged to suspend final judgment on almost all great practical problems, such as free trade,

socialism, trades unionism, etc., till he takes courses subsequent to Course 1, or anyhow till late in that course. This exhortation is the more needed because, in the process of trying to secure a thorough comprehension of principles, it seems necessary to make many applications of those principles to actual problems. If, however, the student will remember that in these applications we are concerned *only with the economic* phase of the matter while the practical problem has many other phases, he will realize that in this connection he should attempt to reach a final opinion, not on the whole matter, but only on the economic phase involved.

As already implied in the above discussion, the course upon which we are just now entering is primarily intended as a foundation for later study. It is, therefore, devoted to a severe discipline upon fundamental principles and their applications. In general, our method of procedure is to introduce in a concrete way the phenomena needing explanation; then to set forth in quite formal fashion the principle which embodies the explanation; to follow this with adequate illustration and argument; then to finish with illustrative problems the solving of which will ensure that the student really masters the principle involved. In order to get the best results, we would advise that, in preparing the lesson, the student should begin by reading the text carefully, though not attempting to master it; that he should then undertake to solve the illustrative problems, recurring to the statement and discussion of principles as he feels the need therefor; and that, finally, he should go over the entire discussion once more in order to get a better comprehension of the matter as a whole. The best results can be obtained from the problems by writing out the solution. In doing this, do not rest satisfied with categorical answers even when these would seem sufficient; rather take pains to *explain*—give reasons for—the conclusion reached. Where argument is needed, be careful to put in every link in the chain and to put each in its proper place. Cultivate clearness and precision of statement.

Illustrative Problems.

1. "In order to be an economic good—wealth—a thing must have utility,—must be capable of satisfying some want." Argue for the truth of this statement.

Answer: The distinguishing mark of an economic good is

the fact that it has value. But no one will set value on a thing unless it is capable of satisfying some want of his;—*i.e.,* unless it has utility. Hence to be an economic good, it must have utility.

2. Is air under ordinary conditions wealth?

3. Show that in order to be wealth a thing must be appropriable and transferable.

4. Is the water flowing from a spring by the roadside wealth?

5. Is an amiable disposition wealth? A hundred tons of gold known to be lying on the surface of the moon? A vein of coal existing, but not known to be existing, under a Michigan farm?

6. "If all the whisky, brandy, gin, and other alcoholic drinks in existence were taken out and poured on the ground, there would not be one whit less wealth or value in the world than before the operation." Is that sound?

7. It would cost a good deal of *labor* to cover the walls of the houses on Washtenaw avenue with posters of a circus given two weeks ago. Would the result be wealth? What is the point to be made?

8. "A thing may have value and *not be useful: e.g.,* an old stone prized by a collector." Point out the error.

9. When we call a man wealthy we mean that he possesses a relatively large amount of this world's goods. Should we understand this to mean that the possessions of the poor man are not wealth?

CHAPTER I.

PRELIMINARY ACCOUNT OF THE EXISTING ECONOMIC ORDER.

In the introduction we developed, among other things, the motion of *an economic order*—a totality of conditions under which economic phenomena take place; and we explained that our study is mainly concerned with the particular economic order now existing,—the phenomena displayed under it and the natural laws governing those phenomena. Our first task is to get **a general view** of this economic order, to familiarize ourselves with its most conspicuous features, before undertaking its more detailed study.

Section A. The Dominant Features of the Present Economic Order.

1. It is easy to imagine an economic order wherein each person produces the very things which he consumes,—bakes the bread he eats from flour he has ground from wheat he has raised. Such an order might be called an **Autonomous** economic order. But the actual system, as we all know, is far different. Most of the goods which each of us consumes are, speaking literally, produced by others, while most of those which each produces are consumed by others. In short the present order is not autonomous but **cooperative.** Herein is the most important single characteristic of that order.

2. The second important fact about our present system is to be found in *the peculiar way in which our cooperation is effected,* brought about. When the word cooperation is used, the first thought suggested is that of a system in which we act together *as the result of an agreement* entered into, or of *authority* exercised over us by some outside power. Thus, people cooperate, in getting up a church supper or a picnic, through agreement. On the other hand, in the family we have a cooperation which is brought about by the authority of one or

both of the parents. Such cooperation is *conscious, organized.* This type is present in communistic societies many of which have existed in the United States, *e.g.,* the Shakers, Oneida, Amana, etc. In contrast, with such conscious, organized, co-operation, that of the present order is largely **spontaneous,** unconscious, organic. Each man produces some commodity or service and exchanges it for the commodities or services of his neighbors. In doing this, he and they really cooperate, but *they are scarcely conscious that this is true.* In fact, when they are first told that this is the case, the statement almost always has to be emphasized very roundly to gain their assent; though when once apprehended it seems very obvious. Now the fact just brought out is expressed by saying that our cooperation in the present order *is effected, brought about, through exchange.* And accordingly we denominate that order as one of **Exchange Cooperation.**

3. But there is another reason for calling this order one of exchange-cooperation. It is pretty clear that, if we have any cooperation at all, there must be some way of *regulating* that cooperation. We need more of some things than of others. We need certain things so much that it will pay us to have them even at the cost of going without some other things altogether. Unless there is some guiding, directing, machinery, we shall be wasting our resources producing the wrong things or the right things in the wrong proportion. Now, in some kinds of cooperation this regulating is done, or would be done, by **authority.** This is the case within the family. How much time the farmer's boy shall put in weeding the garden, how much splitting wood, how much picking up stones, and so on, the farmer determines by authority; and such a system prevails in the main in the communistic societies to which reference has already been made. But, throughout most of the present order, our cooperation is *regulated* by the same machinery of exchange which *effects* that co-operation, and in the same spontaneous way. If too little of anything is produced, prices rise or the market expands, profits increase, and so producers of their own motion increase output; if, on the other hand, too much of anything is produced, prices fall or the market contracts, profits diminish, and so producers of their own motion diminish output. Again, if the output of some commodity during a particular year is exceptionally small, so that consumption all along the line

needs to be curtailed, this is usually accomplished, not by the interposition of the public authorities, but by an automatic rising of price which induces almost every one to cut down consumption of his own motion. So, in various other ways, exchange regulates our cooperation.

Note: The preceding paragraph has brought out the point that regulation, in the existing economic order, is *through exchange.* This obviously takes for granted the proposition that *there is regulation of some sort.* This assumption, however, needs emphasis; for there is nothing more common, even among educated people, than the notion that, save in so far as there is conscious interference with the working of things, *the present order is without regulation,* is chaos, anarchy,—chance alone reigns. Now, this is surely quite contrary to the facts. Economic actions, viewed from either the individual, or the general, standpoint, are *regulated* actions. They are spontaneously organized, correlated, so as to accomplish uniform and regular results. There is an ideal, a standard, as to how economic matters ought to be managed, ordered, which is probably realized as fully as any ideal which society sets for itself. Said ideal of economic ordering may not be the best, may even be the worst, conceivable; but it is in a high degree realized; and, so, economic action is not unregulated, chaotic, the prey of chance. As to the general soundness of this statement, the student can easily convince himself from his everyday experience. The more specific and complete argument for it will be supplied as our knowledge of the economic order expands in the progress of this course.

We have emphasized the thesis that there is regulation in the present order,—that it is not given over to chaos; we must not neglect to disclaim any intention of characterizing the regulation actually effected as altogether just and expedient. The time has not come to go into this matter at all fully; but even at this stage so much should be made clear. No one claims that the present system works perfectly, that there are no evils which society ought to try to eliminate by authoritative regulation. That a system wherein regulation was effected automatically, spontaneously, would work well, *without any tincture of authoritative regulation,* no one would affirm. The most enthusiastic advocates of a let-alone policy have demanded that degree of governmental interference which is necessary to exclude force, fraud, and violations of contract. Further, as was shown by Mill more than sixty years ago, in the actual world authoritative regulation goes much beyond this, and does so with almost universal approval. Now, it surely would be very silly to claim that this policy has been carried just as far as it ever ought to be. There surely are left not a few places where spontaneous regulation fails to attain good results; and it surely is possible that at some of these points authoritative regulation would do

better. Finally, it is entirely possible that in the end organized society will come to look on the present system of regulation as so greatly inadequate that it will be constrained to adopt a system of complete authoritative regulation like communism, or one in which such regulation is only a little less complete, *i.e.*, socialism. But even so, even admitting the final unbearableness of the present order, we should still have to insist that this order is not chaotic, anarchic,—that it is a regulated and a rationally regulated, order, though one in which the process of regulation is automatic.

4. We have seen that the present economic order is one wherein men cooperate and wherein their cooperation is effected and regulated through exchange. The next most important characteristic of the present order is **individual initiative.** It is quite possible to conceive a system of cooperation which, in part at least, is effected and regulated through exchange, but in which *initiative is left to society as a whole, government.* This would be the case under socialism as it is commonly advocated. In such a system the state would be the sole farmer, miner, manufacturer, merchant, *et al., i.e.,* the state alone would *undertake* to produce things, putting all individuals into the position of employees. But it would enter into relations with these individuals under the conditions of free contract, buying their services in the open market. Further, it might, probably would, pay for these services prices determined under the free working of the laws of value. So, in determining what, and how much, should be produced, it would probably be guided by the fluctuations of freely determined prices. (For example, if the price of some particular thing went down, the government would take this as a warning to diminish the production of that thing.) But, while such a system would, like the present, be a system of exchange cooperation, it would differ radically in *leaving all initiative to the state;* whereas, in the present order, initiative is mostly, though not entirely, *the business of the individual,* —persons who have the means and think they see a chance to obtain profits set about producing wheat or iron or chairs or dishes, etc. Accordingly, to give something like a complete characterization of the present order in its most general features we have to say that it is a system of **Individual Exchange Cooperation.**

5. The preceding discussion has laid much stress on the fact that the existing order is cooperative. In thus characterizing

that order we almost necessarily say that it is one wherein **specialization** prevails, *i.e.,* one in which different persons devote themselves to doing different things,—one man makes shoes, another clothes, another bread, and so on. Doubtless there are occasions when *homogeneous* cooperation, *i.e.,* cooperation of persons *doing the same sort of things,* is of decided advantage, *e.g.,* a barn raising; but cooperation would have very slight significance compared with what it now has did it not also prevail in the form of *heterogeneous* cooperation, *i.e.,* a cooperation in which the different participants do different things. Further, the successful working of heterogeneous cooperation would require that the differentiation of tasks should be more or less permanent,—each one should *make a practice* of doing one sort of thing only. That is, we should have to have thorough-going specialization. And of course this is what we do have in the present order. Each devotes himself to doing one sort of things, acquiring in this way extraordinary skill and efficiency. Further, the same rule of specialization is applied to the *instruments* used in production, the tools and machines,—till more and more each is fitted for one very small job. Finally, the same idea is carried out with respect to *land,*—one district being devoted to celery, another to onions, another to citrous fruits, and so on.

Illustrative Problems.

1. Give some examples of autonomous production from everyday experience.

2. "Robinson Crusoe, on his far-away island, had neither trade nor commerce. Except for the supplies that he recovered from the wreck of the ship, he obtained his food from the plants that he cultivated and from the wild animals that he killed. His clothing was made from the skins of goats; his table and his chairs were the work of his own hands. Even his shelter was constructed of the stone and wood that he found on the island. If he had more of one product than he needed he could not exchange it for other necessary articles. If provisions, utensils, clothing, tools, or metals were lacking, he could not buy them. He was by turns hunter, fisher, tanner, farmer, miller, baker, blacksmith, and carpenter."

The above is the opening paragraph of a book on Commercial Geography. It seems intended to suggest the significance and importance of commerce by setting forth the disadvantages of isolation such as Crusoe's. Put the gist of the matter in a single sentence.

3. "In the main, industry is organized in a spontaneous way. Men choose such occupations as they like, and when there are too many of them in one group and too few in another, the automatic working of economic forces moves them from the former into the latter." Explain and illustrate the last clause of that sentence.

4. "The great advantage of foreign trade is in furnishing a market for our surplus products which would otherwise go to waste." This surely is only a minor advantage of foreign trade. Why? Give something better.

5. If the potato crop of a communistic society which had no commerce with other communities were to fall off one-half, how would they regulate the consumption of potatoes for the following year? How is it done under the present order?

6. "It will never pay us to import anything which we ourselves can produce." Show that this proposition is erroneous.

Section B. **Principal Advantages of Cooperation, Looked at from the Standpoint of Individuals.**

It is probably unnecessary to spend much time arguing that cooperation in economic matters will surely prove far more efficient than independent action. But we can hardly pass the matter without pointing out two or three of the most conspicuous advantage of such cooperation.

1. Cooperation enables the individual to enjoy not a few goods which otherwise *he could not enjoy at all because he could not produce them.* Thus, (a) *Homogeneous* cooperation makes possible results which no person acting alone can bring about, and which, therefore, the individual could not enjoy were it not for cooperation. (b) *Heterogeneous* cooperation—doing different things and exchanging the products—often enables the individual to get and enjoy goods which he, anyhow, can not produce, whether acting alone or with others, and which, therefore, he could not have at all were he dependent on himself entirely. Thus some articles can be produced in only a few places. Some services can be performed by only a few persons. A literally complete exclusion of cooperation would mean death to not a few persons.

Note: Put in a slightly different way, cooperation enables every one who has any capacity, however small, for doing things which people want done, to utilize such capacity in getting the things he needs, even though his powers are inadequate to perform a hundredth part of the tasks which he himself needs to have performed every day.

2. Cooperation enables the individual to enjoy a far *larger quantity* of those goods which he himself could produce. Specialization enables both the farmer and the carpenter to become more productive than if each worked at both trades. Consequently, each, in cooperating with the rest, gives, and so gets, more goods than he would if he worked by himself.

3. Cooperation enables the individual to enjoy a far *better quality* of goods than otherwise. Specialization enables each to produce better goods than if he tried to produce all kinds. Through exchange-cooperation each gets the benefit of this improvement.

ILLUSTRATIVE PROBLEMS.

1. Name five or six commodities or services which you could not have at all if you did not cooperate in some measure with other persons.

2. Name three or four economic goods which you could not have at all if you did not cooperate with persons in some other part of the world.

3. Name two or three kinds of goods which *could* be produced in your neighborhood but which you obtain more cheaply through cooperating with the people of other districts.

4. Might it pay you to buy from other districts things which you could produce almost as well as the things you do produce?

5. Give two or three illustrations of how a specialized tool naturally does a better job in respect to quality than a non-specialized one.

6. "During 1904 more ships were built on the Clyde than in the whole of the United States. This fact is creditable to Great Britain but not to us." Show that the fact stated is probably not discreditable to the United States.

7. The people of the Copper Country in Upper Michigan mostly buy their furniture and dry goods from other parts of the country. Does this prove that they could not produce good furniture and dry goods at home? If not, what does it prove?

Section C. Some Formal Principles Based on the Above General Account of the Present Economic Order.

A rather notable fact in this age of general education and enlightenment is the continued acceptance by a great majority of persons, not professional economists, of quite erroneous notions with respect to several familiar and not very difficult matters. In fact, one can scarcely run through a current news-

paper or popular magazine without coming upon fallacies which, as the economist looks at it, were fully disposed of by Adam Smith almost a century and a half ago. This prevalence of unsound doctrine is particularly troublesome and dangerous in the United States because of the fact that the majority of the people have the power to rule and commonly assert that power when economic problems are up for consideration. Accordingly, one of the most important tasks of the student of Economics is to train himself in the art of detecting the fallacies which lurk in popular errors. Further, this task confronts us at the very outset of our course; for some of the most widespread of popular errors with respect to economic questions are connected with matters already brought out in the above general account of the present economic order. We will, therefore, at once set about formulating principles and applying them to popular errors.

Caution: At the very beginning of this kind of work, however, it is important to warn the student of certain dangers which are apt to beset him in dealing with these fallacies, as well as in making any other application of economic principles. The special task of an elementary course like this is to insure the clear apprehension and firm mastery of fundamental principles. We therefore put those principles in very definite form and illustrate them with hypothetical problems of so simple a character that their rigid, dogmatic, application is entirely justified. It should be remembered, however, that almost all the problems which real life presents are characterized by numerous and complex conditions. In actual life, therefore, the immediate and hasty application of economic principles is highly dangerous. *Everything taken into account, a given line of policy may be justified, although the economic argument commonly given for it is quite ridiculous.* The student must, therefore, be very cautious in applying principles to concrete cases—holding himself open to receive light from all sources and looking carefully for conditions which neutralize those that would influence him as an economist to decide for or against a given measure. In short, he must be careful not to develop into a doctrinaire, *one who insists on applying principles which abstractly speaking are sound, without regard to the varying conditions of real life.*

One of the first generalizations from the nature of the present order which we have to lay down, brings out the fact that, generally speaking, each gains from the increased efficiency of his neighbors. This comes pretty close to being an evident corollary from the proposition that we do cooperate in economic matters. As long as we cooperate, act as one, in producing

goods, an increase in the efficiency of the persons producing one commodity would surely increase the total product of the group and, so, would naturally be expected to bring advantage to the other members of the group as well as to those whose efficiency had increased. It might, however, be argued that, while the aggregate product of the group would surely be increased, this would not necessarily be of any advantage to the other members of the group, in that the increase might all go to the persons whose efficiency had increased. Now, the full answering of this objection depends on a knowledge of the principles of price or value which we do not take up till quite a little later in our study. Still, it will not be difficult to anticipate that discussion sufficiently to satisfy the student's mind in regard to the general point. (1) If under free competition we have increased efficiency among the producers of a given commodity, no change taking place among other commodities, then the exchanging rate between the first commodity and all the others will alter in favor of the others, *i.e.,* each unit of any of the others will buy more units of the first commodity. (2) Since, by hypothesis, no change has taken place among producers of other goods, the exchanging ratio among these goods will not have altered, *i.e.,* each unit of any one of these other goods will buy as many units of any other of them as before. (3) Consequently, any producer of one of the other commodities will find himself able to buy with his own product more units of the product in respect to which efficiency has increased while buying no less of other products, that is, he will have gained from the increased efficiency of another set of producers.

Caution: It must not be imagined that the producers whose efficiency has increased make no gain. Each unit of their commodity buys less; but they have more units to buy with, and usually this will mean an increased total of other goods.

Formulating the point brought out in the foregoing discussion, we have the following

Principle. ***The present order, being a cooperative one, each person or community tends to gain from any increase in the economic efficiency of other persons or communities with whom or with which said person or community maintains economic relations.***

A second matter on which we need thus early to lay down a formal principle is *the function of trade, exchange.* There is, indeed, almost no other phase of economic matters on which popular opinions are so much astray. In the minds of a few persons, all trade whatever is *illegitimate.* To a much larger number, this is anyhow true of some kinds of trade. In the view of a majority of persons, probably, trade, if legitimate at all, is surely *unproductive* in any proper sense of words. Many persons who do not go quite so far hold this opinion with respect to some forms of trade. Now, it is hardly necessary to say that, if the account which we have given in this chapter of the general features of the present economic order is substantially sound, all these adverse judgments about trade, exchange, are quite untenable. Trade in general, and presumably all kinds of trade, are legitimate,—play a vital role in economic affairs. If we understand by the word productive that the operation so characterized fulfils a condition essential to the satisfying of our wants, then trade, in some form certainly, is productive. These points may be formulated in the following

Principle. *Under the existing economic system, exchange (trade, commerce) plays an essential part in that it makes possible economic cooperation and specialization—it supplies the process, or system of processes, whereby cooperation is effected and regulated.*

Let the student argue for the two points:* (1) Exchange is necessary to *effect,* bring about, cooperation. (2) Exchange is necessary to *regulate* cooperation. Reflect on such questions as these: (a) What good would the baker get from making 500 loaves of bread, without exchange? (b) Of what use to farmers or ultimate consumers of wool is the local wool buyer? (c) Is there any need for the larger buyers in central points like Denver, Chicago, New York, Boston? (d) Suppose there were a big shortage in the cotton crop, say 40 per cent, and no rise in price took place, what harm would probably result?

Corollary 1. *Exchange operations, viewed as processes necessary to* **consummating** *our economic cooperation, are productive operations, and those engaged in such operations are*

*In economics, as in mathematics, it is very important that the student should learn to think for himself. Just as far as possible, therefore, I shall leave him to make for himself the argument needed under each principle. In the case before us surely this plan is feasible.

producers—productive and producers being employed to indicate that the operations and persons in question supply conditions essential to the satisfaction of our wants.

This proposition so plainly follows from the principle that no argument is needed.

Corollary 2. *Exchange operations, viewed as processes whereby our cooperation is* **regulated** *through price, are productive operations and persons engaged in such operations are producers.*

This proposition, again, follows quite directly from our principle. However, it may need some little comment. Some persons are prepared to admit that mercantile operations are productive in so far as they are devoted to buying from producers and selling to consumers, though the same persons would be disposed to deny the productivity of such operations, in so far as they involve the fixing of prices. But the principle tells us that exchange, trade, is responsible for the proper *regulating* of our economic activity and that this part of its work is largely done through changes in prices. It follows, then, that exchange operations, viewed as price-fixing operations, are essential to our economic efficiency and so are productive operations.

Illustrative Problems.

1. "Give the farmer a parcels post to begin with. Let him send his dozen eggs or his pair of chickens direct to the man who wants to eat them, or at least to the retail merchant. Cut out the commission merchant, the wholesaler, and a few other of the city parasites that live on the farmer."—New York Evening Journal.

(a) Suppose yourself to be a farmer living in the neighborhood of Ann Arbor, and point out some advantages you would derive from selling your butter to the grocers and your chickens to the meat men rather than to consumers.

(b) Suppose yourself to be a fruit grower in Western Michigan, dependent for your market chiefly on Chicago, and point out some disadvantages which you would suffer if you tried to sell your grapes, peaches, etc., by parcels post to the ultimate consumers in Chicago and its vicinity, rather than to commission merchants.

(c) Show that these facts are inconsistent with the notion that commission merchants, wholesalers, *et al.*, are "city parasites."

Note: There is of course much to be said in favor of a parcels post; and it is always possible that the number of

middlemen should become needlessly large so that some of them may fairly be viewed as parasites. But such a characterization of the class as a whole is quite illegitimate.

2. "Internal commerce does not increase the wealth of a nation since it only transfers goods from one person to another." Criticise.

3. In the natural course of events it often happens that a country loses some portion or the whole of its market in some particular country. When this happens or is anticipated, public men are apt to speak as if such a result involved almost irremediable disaster. Doubtless it would mean some loss, but by no means the amount which people seem to imagine. Explain precisely what would be the nature of the injury to us, if our foreign trade should fall off by a considerable amount. Suppose our foreign market showed a permanent net shrinkage of 200 millions of dollars per annum would this mean that our yearly income would be 200 millions smaller? If not just what would it mean?

4. From the Congressional Record for May 17, 1909: "Mr. Aldrich: Assuming that the price fixed by the reports is the correct one, if it costs 10 cents to produce a razor in Germany and 20 cents in the United States, it will require 100 per cent duty to equalize the conditions in the two countries . . . And, so far as I am concerned, I shall have no hesitancy in voting for a duty which will equalize the conditions.

* * * * * * * * *

If it was necessary to equalize the conditions, . . . I would vote for 300 per cent as cheerfully as I would for 50."*

To what sort of an economic system would such notions, if logically carried out, inevitably lead?

5. "A first-class illustration of the absurdity and wrong of the present order is furnished by the case of a plumbing firm. Such a firm does little, if anything, more than act as a middleman between the actual plumbers and householders. But it pays the former at the rate of, say, 30 cents an hour for their services, while it charges householders 60 cents an hour for those services. Here you have a plain case. Either the firm underpays the laborers or overcharges the householders; and in either case it gets something which it has no right to. There is no other alternative." Discuss the above.

6. In connection with nearly all of the great staple products, such as wheat, corn, oats, cotton, wool, etc., there is commonly maintained a peculiar sort of central market, usually known as an *exchange* or, on the continent of Europe, as a *bourse*. The most distinctive characteristic of such markets is that the major part of the trading carried on in them does not seem to have any part in passing the commodity on from the original producer to the ultimate consumer, but rather is a trading backwards

*Quoted from the Quarterly Journal of Economics for November, 1909.

and forwards, to and fro, between the members of the same market, leaving the commodities just where they were, and apparently having no object save the getting of a profit which is often compared to the gains of the gambler. By not a few intelligent and able men, such trading is characterized as quite illegitimate. The economist, however, insists that it performs two or three quite important functions. One of these is said to be insuring that the commodities in question shall have just the right prices. Try to think of some reasons for believing that a great speculative market with the most elaborate machinery for getting the very latest information in respect to the state of the crops, the stock on hand, the changes in demand, and so on, would tend to insure that prices should be what the needs of the case call for.

7. "If the wheat crop of the world should fall off one-half next year, a rise in price would then be of great social advantage, in fact, almost indispensable." Explain.

8. The general account of the existing economic order which has been given in the present chapter furnishes one of the most fundamental objections to the maintenance of a protective tariff, *i.e.*, a tariff intended to hinder our buying goods from other countries. Explain that objection.

Section D. A More Specific Account of the Forms Which Cooperation and Specialization Assume under the Present Order.

In our general account of the cooperation prevailing under the present order, no attempt was made to go into the matter at all specifically. In fact it was vaguely assumed that all cooperation takes a form wherein each producer makes some one thing from first to last,—starts it and finishes it ready for the consumer, *e.g.*, the farmer supplying potatoes. This sort of cooperation we might distinguish as primary cooperation or primary division of occupation. But every one knows that cooperation commonly goes much further than this. Almost no one carries from the beginning to the end the processes necessary to the production of a particular consumption good. The work of the baker must be preceded by that of the miller and the farmer. So, the work of the shoemaker must be preceded by that of the tanner and the stock farmer. Further, between each producer in the series and his successor, must come the dealer, the middleman, to effect the necessary transfer of the product between the independent producers. In addition, the various members in the original series make much use of the products and services of producers in other series. Thus, the dealers who

transfer the hides from the stock-farmer to the tanner make use of the services of various producers outside the series, especially those engaged in the transportation business. Tanners again use coal produced by another group, also bark, and various chemicals. In like manner, shoemakers use thread, bristles, needles, machinery, cloth, etc., etc., which they obtain from other classes of producers quite outside our original series. Here then we have division of occupation *within* division of occupation. We might call it *secondary* cooperation or secondary division of occupation.

But, in an economic society having any considerable degree of development, cooperation and specialization go still further than has yet been brought out. Even in the last case we were thinking of *undivided industrial units,* though each was devoted to providing only some one element in the ultimate product; *e.g.,* a stock farm devoted to raising cattle, a tannery occupied in preparing hides for leather, and so on. But we all know that there is specialization *within* each industrial unit. The tannery, which as a whole produces leather, has some men scraping hides, some attending to the curing of the hides in the various baths, some staining, some finishing, some keeping books, some writing letters, etc. Obviously this sort of specialization is also of very great significance. Writers have sometimes distinguished it from the kinds already considered as *Division of Labor;* while those are called Division of Occupation.

But we have not yet brought out the full extent of cooperation and specialization under the present order. The specialization thus far considered more especially grows out of the differences in the *physical* or *technical* operations to be performed, as just seen in the case of tanning. But there are *deeper* differences among the functions, processes, factors, involved in production. Production requires that some man possessing more or less wealth should assume the *responsibility* of production; it requires that he should have *land* upon which to work; it requires that he should have *laborers* to perform the different tasks; it requires that he should have *materials, tools,* and *machines* to assist these men. In short, to use the more technical language of Economics, there must be at least *three* factors of production: *land, labor,* and *capital.* As the last of these comes to the work in two different relations, controlled by two different sets of persons, we have in reality something like *four*

groups of productive agents engaged in every industry, namely: *landlords, laborers, capitalists* proper, those who supply the capital needed in production, and *entrepreneurs,* those owners of wealth who assume the responsibility of production. Here, manifestly, we have a deeper sort of cooperation and specialization than anything yet considered. This particular kind of cooperation and specialization now under consideration, I will for the lack of a better term designate as *functional cooperation.* We at least ought to realize the existence of such a system, even if we seldom have occasion to make special reference to it.

The student should further note that the development of this functional specialization and cooperation brings in its train new cases of specialization analogous to the simpler forms already considered. Thus, the more completely the furnishing of capital has become isolated from taking the responsibility of production, the more there have developed institutions for dealing in this capital. Prominent among such institutions are commercial banks, savings banks, trust companies, and so on.

Note: At this point it seems desirable to remark on one very important general result of the great extremes to which specialization is carried in the present order, viz., that this fact gives to the existing system an extraordinary complexity which is very confusing to the general public and not a little so to the trained thinker. It is often difficult to isolate the precise function played by a particular business; and people who form hasty conclusions are very apt to deny the existence of such a function, to affirm that the business in question plays no legitimate part, so that those who pursue it are mere parasites upon society. The student should studiously avoid this practice. In fact, he will do well to assume at the outset that every occupation, not catering to human vice, plays a real and legitimate role in the total conduct of economic affairs,—is doing some one of the numberless things necessary to be done if we are to attain the highest economic efficiency.

To summarize this discussion: The present economic system presents itself to us as one wherein we have a vast complex of different industries, mining, stock-raising, farming, manufacturing, transporting, etc., each concerned in the production of some commodity at one or another stage of completion, while, within each of these industries, different functional groups of productive agents, entrepreneurs, capitalists, laborers, and landlords, are cooperating, and while, finally, *this vast industrial complex is brought together, is held together, and is regulated through exchange,*—buying and selling.

ILLUSTRATIVE PROBLEMS.

1. On South University is a little shop which does more or less making of shoes to order; the uppers, however, are bought ready-made from some large manufacturing house. This last fact illustrates either division of labor or division of occupation. Which?

2. It is not uncommon to group together the principal industries from which are derived the ultimate materials out of which, and with the aid of which, goods are made, *e.g.*, copper, coal, wheat, under the designation *Extractive Industries.* Enumerate the chief subdivisions of this group.

3. How would you describe the difference between the extractive industries and the manufacturing?

4. Suppose that in a certain farm family the father manages the outdoor work, doing much of the heaviest of it; the wife cooks and keeps house; the daughters wash dishes, set the table, etc.; and the boys bring in wood, feed the chickens, hunt eggs, pick berries, etc. What is illustrated here, division of occupation or division of labor? Explain.

5. When one concern makes bicycle frames, another rims, another spokes, another tires, etc., etc., while a bicycle factory buys the different parts from the different concerns alluded to and makes them into a completed bicycle, it is plain that the cooperation of these different producers is brought about and regulated through exchange. If, however, all these concerns were to be consolidated into one which made bicycles from the ground up, cooperation would then be effected and regulated by authority. Show that there would still be in the establishment much *functional* cooperation effected and regulated through exchange.

6. "The whole machinery of buying and selling is simply a convenient means of combining effectively the various factors in production, and of assigning the appropriate shares of the product to those who have claims upon it."

That sentence was written for advanced students of economic theory; still we are probably prepared to get the main points of it. Explain what you understand it to mean.

7. There is some propriety in speaking of commerce, trade, as an all-pervasive kind of economic activity, entering into productive processes at innumerable points.

Explain and illustrate.

Section E. Some Necessary Legal Conditions of the Present Economic Order.

A very little reflection will show that the working out of an economic order such as has been described above and is now existing necessarily involves the maintenance of various legal

conditions, particularly various ***rights***. Here follow some of the most important of these rights.

1. *Individual Property,* not only in final products, but also in factors of production, land, ultimate raw materials, tools, machines, etc. By the right to property is meant the right to exercise substantially exclusive control over the disposal of any thing—the right to use that thing oneself and to hinder others from using it. To some degree the right of individual (private) property would be necessary even under communism—*e.g.*, each would certainly have to have exclusive disposal over articles of food. But, under our present system, it must go much further than this. We could have no private initiative in the producing of commodities, unless private persons were allowed to own the goods from which, or with which, commodities are produced.

2. *Industrial Freedom.* Since cooperation in the present order is not consciously organized but works itself out through the spontaneous action of individuals, freedom of action for individuals is plainly an essential condition. This takes various forms, of which the following are the most important: (a) *freedom of initiative,* the right to start enterprises without interference, (b) *freedom of competition,* the right to strive for the same prizes as others without interference, and (c) *freedom of contract,* the right to enter into economic engagements with other individuals without interference.

ILLUSTRATIVE PROBLEMS.

1. Distinguish property in a thing from possession of it.
2. Illustrate in detail the proposition that the working of the present economic system necessarily involves permitting private persons to own the means of production.
3. Show that it is inconsistent with the general plan of the present order to permit producers to form monopolistic combinations.
4. It is often said that private initiative is much more progressive than public initiative would be. Explain in simple language what is meant.
5. Argue for the proposition that we could not have an efficient industrial system without a pretty strong government.

Section F. Interference with the Free Automatic Regulation of Economic Action in the Interest of the Group Welfare.

It has already been remarked that no one is entirely satisfied with the kind and degree of social control or regulation which

is effected automatically through the working of price. Still it is probable that the general drift of this chapter is in support of the opinion that interference is, on the whole, quite undesirable. It, therefore, seems expedient to give a moment to the consideration of one or two reasons for interfering with the automatic control of economic phenomena which have received, and perhaps ought to receive, considerable acceptance. In this section, we remark upon this interference in so far as it has for its particular motive the securing of *the welfare of the group as a whole*, the country, the state, the city.

The fundamental consideration which brings this particular case to the front is that there is *a possible antithesis between the welfare of the individuals constituting a group and the group considered as a whole*. If the world consisted of one nation homogeneous in ideals, manners, language, and so on; if communication between all parts were perfectly easy; if capital and labor were perfectly free to move from place to place; if we had no prejudices, no patriotism, no love of community and neighborhood, so that we felt perfectly willing to change residence, there would be a much readier acquiescence in the leaving of all economic matters to automatic regulation. In other words, the free, automatic regulation of things is the ideal of the man whom we should describe as cosmopolitan in spirit,—one who is interested, or thinks he is interested, in all humanity, and has almost completely gotten rid of all special fondness for any particular group of people or any particular country. But such a description would apply to a very few of us indeed. As a matter of fact, almost every one has a special interest of a deep and abiding character, not only in his own immediate welfare and the welfare of those directly dependent upon him, but also in that of the group to which he belongs,—the city or state or nation of which he is a member. Love of country is just as natural a passion as is love of wife or love of children. It follows that, if any group of men come to believe that the free, automatic regulation of economic relations between their own group and other groups hinders the accomplishment of some good for their group which they believe to be of great importance, they will quite naturally and properly insist upon interfering with said automatic regulation of things,—will quite naturally and properly insist on resorting to the conscious control of matters through the power of the state. For example, while quite ready to admit that any interference with trade between themselves and other

countries will diminish the degree to which cooperation can be carried and so will inevitably, in a measure, diminish economic efficiency, they may also quite naturally believe that this is a comparatively small price to pay for advantages which, in their opinion, could be attained by some degree of interference and in no other way. Thus, they may think it highly desirable that their community should cease to be a pastoral or agricultural community and become one of the great manufacturing communities of the world; and, at the same time, they may believe that they can contribute to bring about this result by putting up barriers in the way of trade with other countries. They, therefore, urge the adoption of such a policy in spite of its admitted disadvantages. In such an attitude of mind and in such a policy, there is nothing essentially inconsistent or unreasonable. Whether, everything taken into account, it is justified, is a question of practical judgment upon which men will always differ. From the standpoint of the economist, the chief criticism to be passed on most of those who advocate this policy of restricting trade, is that, in their zeal, they support their proposal with very bad arguments,—arguments which ignore the inherent advantages of unrestricted trade as permitting a high degree of cooperation and providing for its effective regulation.

In the preceding comment, we had more especially in mind the case of a country as a whole over against other countries. It hardly need be said that the same problem arises in the relations of particular sections or cities within a country to other sections or cities within the same country. Thus, we are all familiar with the popular notion that it is the duty of every community to protect itself against the competition of other communities, e.g., that it is the duty of the people of Ann Arbor to refrain from purchasing goods in great cities and thus reducing the business of home dealers. In a later chapter, it will be pointed out that some of the arguments most commonly given for this policy are quite fallacious. But this must not blind us to the fact that there are real grounds for favoring trade with home people rather than outsiders, e.g., the desire to maintain for our own convenience a particular line of business which at the best has difficulty in holding its own against outside competition. In this case, as before, the wisdom or folly of the policy favored is a question on which people of equally good judgment may differ. The economist, however, must try to insure that fallacious economic arguments be eliminated from the

controversy, and, at the same time, must insist that all interference has this drawback, viz., that it impairs the working of that mechanism which effects and regulates our economic co-operation.

ILLUSTRATIVE PROBLEMS.

1. During many years it has been customary for a particular Chicago book house to maintain a temporary agency for the sale of text-books in the city of Ann Arbor during the first few weeks of the college year. Give one or more reasons for arguing that it is not expedient for the Ann Arbor citizen or student to give his patronage to such temporary stores.

2. One of the few arguments used by protectionists which teachers of political economy would recognize as sound is known as the Infant-Industries Argument. Develop that argument with some illustrations.

3. "Nothing was more contrary to his (O'Connell's) desire than that her (Ireland's) population should be greatly diminished and that she should be turned into a great pastoral country, yet nothing is more clear than that the abolition of the Corn Laws, depriving her of her preferential position in the corn market of England, made such a change inevitable." Lecky's Leaders of Public Opinion in Ireland, volume 2, pages 92-93, quoted by Dicey.

(a) What is meant in the above quotation by "her preferential position in the corn market of England"?

(b) Explain why one might perhaps reasonably expect that the adoption of free trade by the United Kingdom would tend to turn Ireland into a pastoral country with a diminished population.

Section G. Interference with the Automatic Regulation of Economic Action Which is Intended to Promote a Different Distribution of Income.

Another very important type of interference with the automatic regulation of economic action which is advocated by many persons, has as its object the changing of the distribution of income among citizens. Schemes of this sort range all the way from some slight regulation of the existing system in respect to matters of taxation, up to schemes which completely remodel the existing economic order, replacing all individual initiative with governmental initiative and replacing automatic regulation with conscious regulation by the state itself. The advocacy of schemes of this sort is entirely consistent with the admission that the present order is automatically regulated and fairly well regulated. Further, there is no inherent reason why any one

of these schemes should not be adopted, if it promises materially to improve the present order. The end which such schemes set before themselves, namely, a diminished inequality in the distribution of income, is admitted by everyone to be a *desirable* end. Further, the regulation of economic matters, like all other matters within society, is surely within the prerogatives of the state. The only question, as in the preceding case, is one of expediency. The fundamental reason for the maintenance of the present system of spontaneous, automatic, control is the belief that, on the whole, it works better than would any other It is not maintained because society has no right to set up a different one. On the contrary, there is no question whatever but that, if Michigan or the United States or England or Germany thinks best to adopt the most thoroughly socialistic or communistic system imaginable, it has a perfect right to do so. If society comes to believe that the system of automatic control is not, on the whole, working well, it will be the business of society to try something else. One point only the economist must insist upon: the present order is not anarchic, unregulated; it is automatically regulated, and, as things go in this world, fairly well regulated. Just how far it should be modified, how far replaced by a new system, is wholly a matter of practical expediency,—a matter on which people of equally good judgment must, and will, differ.

Note: It is largely an error to suppose that the leading economists of the first half of the last century held opinions materially different from those just given. Almost all of them were not only able thinkers, but also men who were thoroughly in earnest for the betterment of social conditions. They advocated liberty, non-interference, *laissez-faire*, because they believed that such betterment of social conditions was to be secured only by this policy;—and there can be no material doubt that, for the time and place, their opinion was a sound one. At the same time, however, they did not hesitate to advocate interference when they believed such interference demanded by expediency. In fact, it would be difficult to find a stronger and better statement of the principle that there is no proper criterion as to the legitimacy of any particular case of governmental interference except expediency, than is to be found in Chapter I, Book 5 of Mill's Political Economy, which was published in 1848.

Illustrative Problems.

1. Point out some cases in which you think the socialistic method of regulating economic activity would prove more desirable than the present one.

2. Point out some cases in which you think that a socialist system would almost necessarily have to keep to our present method of automatic regulation.

3. Try to get some admissions from socialists that there would be points at which automatic regulation would be inevitable, even under their system.

CHAPTER II.

ANALYSIS OF PRODUCTION.

It needs very little reflection to convince any one that practically all economic goods of the sort that are put directly to the satisfying of wants, as also the great majority of intermediate goods, *are produced*—result from the action of men. It is hardly necessary to say, then, that one important topic of economic study is Production,—the processes, means, and conditions, by which, and under which, men bring economic goods into existence. We must, however, note at the outset that economics does not undertake an exhaustive study of production. Much the largest part of what might be said under such a head is relegated to technical sciences and arts such as Mining, Engineering, Agriculture, Mechanics, and so on. Economics limits its study of production to certain most general aspects of the matter—especially such as have very close relations to the problems of value, since these form the heart of economic science.

Section A. **The Economic Factors of Production.**

It is evident on the least reflection that to produce wealth, economic goods, involves the combined operation of various elements or factors. We raise potatoes with the aid of land, fertilizers, rain, sunshine, tools, etc. One of our first tasks is to isolate the different factors, decide what ones are economic, group them into classes, and so on. In doing this we will analyze *commodity* production, which, being more complicated than *service* production, fairly covers both cases.

1. Surface Account of the Elements or Factors Involved in Commodity Production.

Let us begin by setting down everything we can think of which seems necessary to the production of some manufactured article. (a) First, plainly, we must have the *decision, willing,* of some person to produce;—this is more or less separable from the labor, land, etc., necessary, as seen in actual, everyday,

production. (b) Next comes a *place* for the producing process, which naturally breaks into (1) *position* on the earth's surface, (2) a specially *prepared* spot of ground, and (3) a *building* or buildings. (c) *Materials,* wood, iron, steel, etc., are necessary; and these, which are themselves (1) *produced* materials, must have been made out of (2) *ultimate* materials. (d) *Labor,*—efforts, physical or mental, made by human beings,—is of course indispensable. (e) *Tools,* instruments, must be available. (f) *Machines,* complex tools more or less automatic in character, will commonly be used. (g) Behind these machines will be *prime-movers,* sources of power such as the steam engine, or water-power. (h) In some cases these will require *fuel* or *feed.* (i) All the time we shall be using, consciously or unconsciously, unappropriated *natural powers* and materials, *e.g.,* gravitation, heat, light, moisture, air, etc. (j) Finally, producing anything takes *time;* further, the producing of some things takes *more* time than the producing of other things; and, most of all, the producing of things *in some ways,* requires more time than producing them in other ways, though, once the longer way is started, we can produce better and faster by that way. In short, production, to be carried on in accord with our best interests, requires that we should have *the power to dispose of time,* in the sense of being able to choose a procedure which requires *waiting* as well as working. (Read pages 29 and 30 of the Readings and show that the use of the more efficient, but also more roundabout, methods involves the possession of waiting power.)

For the sake of definiteness, let us make a list of these in tabular form.

(a) Conscious willing to produce,—assembling the elements, etc.,—assuming the responsibility of having production go on.

(b) Place.
  (1) Position.
  (2) Prepared land.
  (3) Buildings.

(c) Raw Materials.
  (1) Produced Raw Materials.
  (2) Ultimate Raw Materials.

(d) Labor.

(e) Tools.

(f) Machines.

(g) Prime movers.
(h) Fuel or food.
(i) Nature's Powers or Materials not Embodied or controlled through land or some of the things above enumerated.
(j) Time.

2. The List of Elements or Factors of Production Revised and Grouped on the Basis of a Deeper Analysis.

It is hardly necessary to say that no thoughtful person would be satisfied with the above strictly surface account of the factors involved in production. Some deeper analysis and grouping is surely needed.

(a) In the first place, the elements grouped under (i), those powers or materials of nature which are not controlled through land or machines of prime movers, *e.g.*, the air,—nitrogen in the air, moisture, etc., though necessary to production, are not accounted *economic* factors at all, for the reason that they are not controllable or appropriable, therefore, do not have value, therefore do not belong in the economic field. Elements of this class are *physical* or *technical* factors *of production* but not *economic* factors.*

(b) Again, land which is actually being used in production is not necessarily a *true* economic factor. In partially settled countries, anyhow, there will often exist a state of things wherein some of the land actually in use is no more desirable than much which is not in use and has no value because of this abundance of its kind of land. Under these conditions, the particular piece of land actually being used is not an economic factor. This of course does not mean that the potatoes or wheat raised on the land in question could be raised without land; but merely that, under the circumstances, none of the product is credited to the land, since plenty other pieces just as good could be substituted for this particular piece without costing anything, and so the land factor in this case is virtually a free good like the air or the nitrogen or the moisture which figured in the preceding case.†

*Notice that a thing may be a technical factor but not an economic one. The converse, however, is not true. Nothing can be an economic factor which is not first a technical factor. If any element is essential to the result, it is a technical factor. If, in addition, it comes into the economic field as a thing which has value, it is an economic factor.

†The simplest test of an economic factor is the presence or absence of value value.

(c) The preceding two paragraphs have thrown out from the list of economic factors some elements of natural origin, air, nitrogen, and even land under some conditions. But *some* of nature's contribution are surely economic. The ultimate raw materials, (c) (2), often have value, because relatively scarce, and so must be accounted *economic* factors. So, land, as position on the earth's surface, (b) (1), though not necessarily an economic factor, is usually such, being scarce and having value. This factor we might call "nature;" but more usually it is designated **land,** meaning, remember, the original, unproducible, indestructible, earth,—including ultimate raw materials,—*together with such produced elements as, under various conditions, come to behave, in the determination of values, as if they were an original part of the earth.*

(d) **Labor,** the element numbered (d) in our table, is obviously a technical factor in production,—without it production can not go on. Further, as we all know, it is also an *economic* factor,—it has value, belongs to the economic field. Accordingly, every one recognizes it as being, anyhow, *one* of the ultimate productive factors.

(e) Looking, now, at the remaining factors in our list, we note that all but two of them will naturally go together as being themselves products, though products which are wanted, not for their own sakes, but for the sake of something we expect to make out of them. Here we should have to put (b) (3), (c) (1), (e), (f), (g), and (h). With these should be reckoned (b) (2),—though this is not quite so plain,—since prepared land, *looked at as prepared,* is produced just as much as is pig iron or ingot copper. Let us for the moment name this group **intermediate products.**

(f) We have now only two undistributed elements on our list: *time* and *willing to produce.* What is to be done with the former? At first thought, one might be disposed to say that time, however necessary to production, can not be an economic factor because it can not be bought and sold. But we must not be too hasty. In effect, time, or waiting power, *is* bought and sold, every day. The need for time in order to resort to more efficient methods naturally expresses itself in the need for surpluses of those goods which we are now producing, in order that we should be able to turn some portion of our efforts into the new channel. In short,

we must have *something ahead.* Now, this getting something ahead can be done, so to speak, by proxy. Some persons whose incomes make it possible, save from those incomes and accumulate stocks of money or money credit. These accumulations embody, we may say, waiting power, time. The responsible producer borrows them and then hires labor to initiate the round-about, time-consuming, methods. In thus borrowing, he is in effect buying time, waiting power; and the lender is selling such time or waiting power. Accordingly, in our present economic order, time, as an economic factor, manifests itself in the shape of loanable money funds. These the business world usually denominates **capital;** and we will for the moment accept this designation.

(g) We have now but one of our items left, viz., (a), willing that production go on, *assuming the responsibility* of having things produced. At first thought, the setting up of this element as a separate factor seems hardly less than absurd. Surely no one can produce without willing to produce, assuming the responsibility of producing. Does not every one who makes any contribution to the productive process in so far *will* the existence of the product? This sounds plausible; but it will not stand examination. The patent fact of experience is that the assuming of responsibility for the product's existence is a function which is separated from the several contributions necessary to the result. The men who supply land services, labor services, and capital services, respectively, leave to someone who buys these services from them the bearing of responsibility for results. *He* wills those results; bears the anxieties; and suffers the losses.

(h) The preceding analysis has left us provisionally five factors, land, labor, intermediate goods, money capital, and responsibility-taking. But some further revision and concentration is necessary. The third of these five elements, intermediate goods, being themselves products, must be in some sense and degree mere embodiments of previous elements or factors. That is, it does not seem as if they could be said to constitute an original, independent, factor coordinate with land and labor. Ought we not, then, to drop this class out altogether, affirming with the socialist that such goods are merely "congealed labor" or, anyhow, that they are congealed land and labor? To this question, most economists more or less clearly

give a negative answer. We must treat these intermediate goods as an independent factor, because they embody *another* element besides land services and labor services, *viz.*, *waiting*, time. We do not adequately describe the matter when we say that the fisherman who, instead of catching fish directly with his hands, begins by making a net and then uses the net to catch fish, is merely *working on a different plan* from what he would in the other case. Such language suggests that the sacrifices are absolutely equal in the two cases, that all the conditions requisite in the "net" method could be fulfilled by any one who could fulfil those requisite in the "hand" method,—assuming that he could *make* nets as well as use them. But, of course, such a statement would be quite untrue. The fisherman who has enough dried fish ahead so that he can devote, say, 30 days to making a net, can resort to the "net" method. In contrast, the fisherman who has nothing to satisfy his hunger beyond today must be content with the "hand" method, even if he has just as much skill in net-making as his rival. That is, in order to be able to use roundabout methods, to begin by making intermediate goods and then use these to reach our true goal, it is necessary, not merely that one be able to labor in the ordinary sense, but also that he have the *power to wait*. If some one wishes to insist that this is only a *special phase of labor*, he surely has the right to use such language,—though the notion seems rather ridiculous in view of the fact that this phase of labor is mostly performed by the very people who do little or no labor in the usual sense. But, whatever some persons choose to *call* it, this element is surely present in intermediate goods, and, to the ordinary mind, it is not covered by the word labor. Accordingly, it is necessary to insist that the intermediate goods now under consideration are embodiments, congelations, of land services, labor services, **and waiting.** They, therefore, have to be distinguished as constituting, in some sense and degree, a factor independent of land and labor.

In the foregoing paragraph we have insisted that intermediate products must be recognized as an independent factor. But the particular feature of these intermediate products which was used to defend our position, *viz.*, that they embody waiting, was also provided for under the fourth provisional element, money capital,—surplus money funds devoted to the purchase of these very intermediate products. Now, it is obvious that we

must not count this waiting element twice. Further, it is hardly less obvious that there would be little propriety in distinguishing waiting power as embodied in money funds from such power when embodied in ordinary intermediate goods. In short, the seemingly reasonable procedure is to coalesce our third and fourth elements into one—capital; and this is the universal practice where either is kept distinct from land or labor.

We have now reduced our factors to four, land, labor, capital, and responsibility-taking. Ought we to take another step, combining the third and fourth into one, and, thus, reducing all to land, labor, and capital? Is not the assuming of the responsibility for production simply one aspect of the function of capital? or anyhow one function of capital coordinate wth the other function, waiting? Responsibility-taking obviously goes along with *being the owner;* and is that not true of waiting? Is not the lending capitalist *virtually a part owner* of the business and its outfit? This doubtless has much force. We should not be far astray in holding that the factors of production are three: land, labor, and capital. If we do this, however, we must not forget that capital performs in the process *two* functions, waiting and responsibility-taking, and, in actual practice, these are to a considerable extent separated.*

3. Should the Factors of Production be Reduced to Two or One?

The foregoing analysis of the productive process has left us with four, or anyhow three, economic factors of production. Against this account of the matter, which may be described as the conventional or orthodox one, there has been, and still is, more or less opposition. Some would reduce the factors to land and labor; some, to capital and labor; some, to labor alone. The first of these opposing doctrines has already been more or less fully dealt with in the preceding division of this section. The principal ground on which is maintained the contention that land and labor cover the whole case, is that capital

*It is worth the student's while to note that this and many other points in economic analysis which seem to outsiders needlessly subtle are after all only careful theoretic expressions of distinctions which have long been embodied in business practice. In that practice, the borrowing producer largely gets rid of the waiting part of the capitalistic burden by borrowing, while he retains, in large measure anyhow, the responsibility burden. He, not the lending capitalist, does the worrying, make the final decisions with respect to the conduct of the business, and suffers the loss if failure comes.

—intermediate goods—is produced by the combining of land and labor and, so, is not an independent factor, coordinate with those two. The inadequacy of this reasoning has already been explained: capital contains *another element* besides those which are, or can be, furnished by land or labor, using those terms in any natural or usual sense;—to secure capital man must have at his disposal *waiting* power as well as labor. We can not, therefore, rest satisfied with an analysis which reduces the factors of production to land and labor. Capital must be recognized as in some sense and degree an independent factor.*

We have seen that some economists deny the right of capital to be considered an independent factor in production. Another group admit the claims of capital but deny those of land. Land, in their view, is only *a particular kind of capital;* and, so, the factors of production are labor and capital. Now, there are no doubt reasons for uniting land and capital (as heretofore used) under one designation. The two things have some elements in common. But, for that matter, so do land, capital, and labor; and more than one recent writer has reduced all the factors of production to *one*,—capital. In fact, *all analysis is more or less arbitrary*. Everything which exists is in some kind and degree similar to, and connected with, everything else which exists. Winding in and out, there are innumerable threads connecting one concept with another; so that, wherever we put the dividing line, we shall cut some real connections. Biologists have never agreed on any perfectly adequate method of distinguishing animal and vegetable organisms. Within a fortnight (1911) I have been told by a professor of biology that he should not be surprised to hear almost any time that some one had proved the existence of consciousness in the particles of the

*It will perhaps occur to the student that we ought to mean by capital, *not the whole* engine or net or car, but only some part, some feature, of it,—the *waiting* element in it as distinguished from the land and labor elements. This is surely in a way reasonable; and it is not improbable that more than one of the somewhat startlingly novel ways of conceiving and defining capital which have appeared in recent years have their origin in a more or less conscious attempt to carry out this idea. Much stress is laid on the *waiting* idea, or on the *time* idea. The teacher of economics who is not prepared to go so far as to adopt a totally new definition of capital, nevertheless often permits himself figurative forms of expression which bring out the same idea. Thus, he may perhaps describe capital as waiting power, bottled time, etc. But all such methods of treating the matter, if taken literally, meet one very serious difficulty: *the peculiar element which characterizes capital as capital is separable from the others only by a very heroic abstraction which many find it difficult to use without giving it a concreteness to which it has no claim.*

huge boulder which constitutes the memorial of the class of '62. In general, then, all lines of demarcation must be illogical in the sense that they separate some things which have much in common and put together some things which show radical differences. The choice of the proper point of division is, therefore, a matter of expediency in view of all the facts of the case. Usage counts for a considerable; significance in connection with great practical problems counts for much more. In the opinion of most economists, the behavior of land (in the economic sense) in respect to the determination of values, and so in respect to various practical problems in which value-determination is of prime importance, is sufficiently different from that of ordinary forms of capital—intermediate products—to make the distinguishing of the two in many cases highly desirable. Until that opinion is changed, economists will not consent to throw out land as an independent factor in production merely because a scholastic logic can find reasons for treating land and capital as one.*

It may perhaps help the student at this point to be told that, by universal admission, the "land" of orthodox economics is seldom if ever *physically* separated from capital. Yet the separateness of land is not a mere abstraction. Land more or less completely separates itself from the capital associated with it in the processes of price determination. Thus, under normal conditions, if the government levies a tax on buildings this causes the hire (rent in the popular sense) of such buildings to rise; while, if the government puts its tax on the site, this does *not* cause the hire of the site to rise, but *does* cause the *price* of the site to *fall.* It must be admitted that this economic separation of the producible and non-producible constituents is often imperfect,—that some of the produced elements get inextricably tangled up with the non-producible—; but this, it would seem, could invalidate our distinction only on condition that the particular producible elements under consideration were able to draw the non-producible ones over into their class, in other words, to obliterate the distinction. But this surely does not happen. Instead, these particular producible elements have to give up all connection with their own kind, have to come under the dominion of the economic laws governing non-producible elements.

We have remarked on those objections to the conventional analysis of production which would reduce the factors either (1) to land and labor or (2) to capital and labor. There re-

* See note at end of volume, page

mains the objection which seems to reduce them to one, *labor*. It is probable that this way of looking at the matter is no longer of much significance. It seems, however, to have had more or less vogue among socialists and semi-socialists. This, of course, does not mean that any socialist would claim that labor can produce without nature's assistance, or can produce effectively without the assistance of capital. The latter factor, however, was quickly disposed of by insisting that it is only *congealed labor*. Land was got rid of in another way. It is, of course, necessary and it is not a form of labor. But it is a *free* good, *i.e.*, a gift of nature. Under the present order, it has an economic character and, so, is an economic factor. But this economic character is given to it *arbitrarily by permitting property in it;*—men are permitted to own it, hence to give it value, and, so, to make it an economic factor. It is probable that few enlightened socialists of our day would support this contention. Its unsoundness is easily shown. Ownership is essential to exchange value; but mere ownership can not give such value. There must be *scarcity* as well. If there is *monopolistic* ownership, then the needed scarcity can be secured artificially; and, so, the economic character given to a thing may be *arbitrary* in its nature. But the ownership of land is not usually monopolistic,—there are many competing owners. The value of land is, therefore, not arbitrary, but perfectly natural, in its origin. Under socialism, land would have value and, so, would be an economic factor just as truly as now; only, under socialism, the owner of the land would be *the state* rather than the individual; and, so, the share of the land in production would be credited to the state rather than, as now, to private individuals.

4. Relations of the several Factors of Production to one another.

It is very plain that the most vital, central, element in the producing process is assuming the final responsibility for it, willing that production shall take place and exercising final authority in its conduct. It follows, therefore, that capital viewed as the factor on which responsibility-taking falls, is the primary, central, factor in production, as it is conducted in a highly developed industrial society. The entrepreneur, as he is now commonly called, the one who is responsible for the existence of the business, is the producer *par excellence*. All others engaged in the undertaking are naturally conceived as

auxiliaries, as producers of services which the entrepreneur assembles, combines, into that commodity which is the product of the business taken as a whole.

ILLUSTRATIVE PROBLEMS.

1. "Here is a country with abounding natural resources and an energetic and industrious population; but its development is impeded by the lack of capital. Measures should be taken to draw in the surplus capital of England and other European countries."

Explain more fully and with illustrations what the first sentence means.

2. "The most of us live by our wits—spend our time wheedling the true producers, the men who work with their hands, into sharing with us the things which they produce."

Give several illustrations of kinds of labor necessary to production which would not naturally be described as working with one's hands.

3. How ought the fences on a farm to be classed, as land or capital? How about the tile drains? The trees in the wood lot? The trees in a young apple orchard? Does it prove that a given distinction is illegitimate or useless to show that you could not draw that distinction in every actual case? Illustrate this point.

4. Argue for the propriety of the statement that capitalistic production is round-about production.

5. Some writers have been disposed to affirm that, in the last analysis, all capital gets its start in a surplus of the means of subsistence, particularly food. This undoubtedly has considerable force as applied to primitive conditions. Illustrate the proposition for a community of fishermen.

6. Josiah Wright, the wagon maker, is making a stone boat which he expects to sell to some neighboring farmer. Now, a stoneboat is undoubtedly capital or capital goods; yet in making that stoneboat, Wright is not, strictly speaking, producing capital. Explain the riddle.

7. "Discovery and invention have doubtless played a very large part in securing our present high industrial efficiency. But they are not the whole thing. The increase of capital has been equally necessary; for, without capital, invention could have accomplished little or nothing." Defend and illustrate the last sentence.

8. "The common pursuit of forestry as a private business almost had to wait until capital became relatively very abundant." Why should this be true of forestry more than of wheat raising?

9. The following is taken from a short story in a recent number of one of the popular magazines. The hero inherited

great wealth in rolling mills and has for several years successfully continued the business. He is also public-spirited and liberal. Referring to his charities, the author says: "What was it that he had given? Something that he...had never earned. His hands had never touched belt or pulley. He looked at them curiously. *It was the toil-hardened hands of twelve hundred other men that made his giving possible*—the hands of the men he was planning to turn off on Monday."

Show that, if this was a normal case, we could impute to the services of the twelve hundred workmen *only a part* of the net output of the mills; that the portion going to the proprietor was reasonably enough credited to his contribution to the business. Enumerate several elements which probably entered into his contribution.

Section B. The Agents (Actors) in Production

The preceding analysis of the productive process is an *economic* analysis, the factors brought out are *economic* factors, *i.e.,* factors which are embodied in material objects or conditions controlled by human beings and having value. The control of these several factors is, or at least may be, in the hands of different classes of persons. It follows, therefore, that there are different classes of producers, different agents or actors in production, corresponding to these factors. This matter has, of course, been already anticipated, but a more explicit analysis is demanded.

1. The primary, central, factor in production is *capital, viewed as the responsibility-taking element;* and so, of course, the primary, central, agent in production is the person, natural or legal, who supplies this factor, who assumes the function of responsibility-taking. Adam Smith (1776) called him the undertaker. For obvious reasons this very desirable usage is out of vogue. In its place most English-speaking writers employ the French equivalent, **entrepreneur.** Recently some writers have taken to using a newly-coined term, enterpriser.

Notes: (a) One who performs the function of responsibility-taking with respect to an *old* business is just as truly an entrepreneur as one who occupies the same relation to a new business. Every business, old or new, must have an entrepreneur. This forms a decisive objection to the statement sometimes made that profit—the remuneration of the entrepreneur—is the reward or wages of enterprise, *i.e.,* taking the risk and general responsibility of *starting new undertakings.* It is also something of an objection to the name "enterpriser", since this suggests, not the entrepreneur as such, but a particular class of entre-

preneurs, *viz.*, those who show enterprise—courage—in starting *new* undertakings.

(b) The student should be careful to distinguish the entrepreneur of a business from the *promoter,* the man who induces people to start it.

(c) It is an error which in our day is very obvious to make the managing of a business the peculiar function of the entrepreneur, though not a few economists have made this mistake. The decisive consideration is that many entrepreneurs almost entirely hire their managing done, just as they hire stoking, engineering, book-keeping, etc., done; and, so, managing takes its place as one of the many kinds of *labor necessary* to a business, and the men who do it are only a higher sort of laborers. It should be noted, however, that there almost necessarily remains to the entrepreneur *a residuum of managing;*—he must usually make final decisions with respect to certain fundamental policies, and he must at least choose one or more leading members of the managerial force.

(d) It follows from the last sentence that they are somewhat at fault who make risk-taking the sole function of the entrepreneur. Doubtless the taking of risk is one of the most conspicuous features of final-responsibility-taking; but it is not the only one.

(e) In the case of industries undertaken by corporations, the corporation as such, that is, the collective unit, is, from the standpoint of formal logic, the true entrepreneur. But caution in interpretation is here necessary. The corporation acting through its usual organs, president, secretary, general manager, *etc.*, can not be the entrepreneur; since these organs are created by a more fundamental power, the board of directors. Again, the corporation acting through the board of directors, can not be the real entrepreneur; since that body is created by a more fundamental power, the general meeting of stockholders. When at last we reach the general body of stockholders, acting in the way prescribed by their charter for the determination of fundamental questions, we are in the presence of something, which from some standpoints, may fairly be called ultimate,—there is nothing behind to determine its action. This general body of stockholders, therefore, may put up a fairly good claim to the title of entrepreneur. In a sense, however, the function and title seem in some respects to fall on stockholders as a mere *aggregate.* This is particularly true at the *starting* of corporate undertakings. Whether or not the industry shall be carried on at all, *i.e.*, the taking of the ultimate responsibility of production, rests with investors *as individuals,* not with a body of stockholders formally organized. Accordingly, for some purposes, we have to locate the entrepreneur of a corporation in the stockholders formally organized, while, for other purposes, we look on the mere aggregate of stockholders as occupying this position.

2. Besides capital, serving as the responsibility-taking factor, we will remember that there are three other factors, land, labor, and capital considered as the factor which supplies *waiting power*. These three, as already indicated, may be conceived as subordinate to capital viewed as the responsibility-taking factor. For each of these, there is of course a corresponding agent or actor. The agent in the case of land is the land owner or **landlord.** He is the one who furnishes the use of the land or land services.

As hinted in another place, it is possible to have an economic order in which private land owning is not permitted, and therefore one in which the *private* landlord would not be a producer, an agent in production. But it has not been possible since the very beginning of society to have an order in which *some sort* of landlord would not be an agent in production. For, just as soon as any part of this land came to be wanted by more than one person, it would come to have value, would become an economic good. Some one would inevitably appropriate it and take advantage of its superior desirableness. This might be the community as a whole or an individual. And, whether the one or the other, we should have to secure his participation in order to utilize the land in question as a factor in production. And what necessarily happened to early societies, shows what will always prove true: *we can never get rid of the landlord as an agent in production. All we can do will be to substitute public, for private, landlords.*

3. The third agent in production is the **laborer,** meaning any one who furnishes services which are the product of his own effort, whether these services are high or low, physical or intellectual. The $100,000 president of a corporation is a laborer just as truly as his office boy.

The mark which distinguishes the laborer from any other participant, if such there be, who furnishes effort services is the fact that services such as his can be hired. Mr. McGregor, the South University grocer, is an entrepreneur because he is responsible for the business. Further, he probably does as much work as any of the clerks. But most of his efforts pertain to him, not as entrepreneur, but as laborer. They are just the sort of efforts that he can hire other men to put forth, and that many grocers do hire. It would, therefore, be quite illogical

to put them under a different head. Hence, they are labor, and with respect to them he is a laborer.

As already brought out, there is probably a residuum of labor which must be performed by the entrepreneur as entrepreneur. But it is too slight in amount to merit serious consideration.

4. The fourth agent in production is the **capitalist** proper. By this term we mean the one who lends capital to be used in a business, but does not assume the responsibility of the business. The return of his capital and payment for its use (interest) is *assured* him. The special function of the capitalist proper is to do the *waiting* involved in industrial processes, just as the special function of the entrepreneur is to assume the responsibility of production. The bondholders of a corporation are capitalists; the stockholders are elements in the joint entrepreneur.

The use of "capitalist" here defined is somewhat technical. Economists often employ the term as the public do, *i.e.*, to include entrepreneurs as well as capitalists proper. From some standpoints, we even look on the landlord as a capitalist. But the use explained above is frequent and at times convenient.

Note: It is scarcely necessary to say that, in the real world, there is never probably any such complete separation of functions as might be suggested by the above analysis. The same man often fills two or more roles. The typical farmer is landlord, capitalist, laborer, and entrepreneur, all in one. The grocer, in the above illustration, is anyhow entrepreneur, capitalist, and laborer. The distinctions made are primarily *functional;* though they may be, to a considerable extent, *personal* as well.

Illustrative Problems.

1. "In cooperative production (meaning production in which the workmen own the business) the place of the *entrepreneur* is taken by a manager elected by the workmen."—Text-book. Criticize. How *is* the entrepreneur constituted in cooperative production?

2. "Today, all over the land, masons, hod carriers, carpenters, and so on, are building palaces which other people are to live in. When socialism triumphs, all this will be changed. The worker, no longer robbed of the fruits of his labor, will himself occupy the palaces he builds, wear the broadcloth he makes, and eat the choice viands he produces."

(a) Does justice require that the worker should have the right to consume the particular object he expends effort on? Explain.

(b) If it did, would the *particular* set of workers,—masons,

hod carriers, carpenters, and so on,—who construct the palace, have the exclusive right to enjoy it? Explain.

(c) Show that other persons besides "workers" in the sense here used have supplied conditions necessary to the existence of the palace.

3. Until recently it was usual to teach that the peculiar function of the entrepreneur is to *manage, direct,* industry. One feature of modern industrial organization almost compels us to reject this idea. Explain.

4. "Postponing consumption so that production may be carried on in a roundabout way is the function of the capitalist." —Text-book. Explain and illustrate.

5. Why do we say that every stockholder of a corporation is an element in the corporate entrepreneur while a bondholder, who also has capital in the concern, is not?

6. Not many years ago Mr. W, after some months of painstaking negotiation, induced a number of persons owning certain lands on the Copper Range to join with him in organizing a corporation to build a railroad, open mines, etc.,—Mr. W putting in some land of his own. For his fee, Mr. W was to receive a certain number of shares in the stock of the company.

Distinguish with explanations the two economic roles played by Mr. W in this matter.

Section C. **The Costs of Production.**

A very important phase of the productive process is *cost,* by which we mean, in general, *some sacrifice which has to be made if production is to take place.*

1. Utility Costs and Disutility Costs.

Costs naturally fall into two classes, (a) utility and (b) disutility costs. By utility cost we mean a sacrifice which consists in relinquishing one utility to gain another. I have intended to use certain boards to make a cold frame for roses. I decide to use them making a walk. I have intended to use a certain sum of money to put a new porch on my house. Instead, I use it to take a trip to Muskoka Lakes. Here, the cold frame is one of the costs of the sidewalk; the porch, the cost of the trip to Muskoka.

A disutility cost means a sacrifice which consists of some action, some procedure, which in itself involves discomfort; *e.g.,* labor when one is weary. Disutility is the opposite of utility. A thing possesses utility if it is fitted to give us satis-

faction; disutility if it is fitted to bring us dissatisfaction, discomfort.

The same cost may be either a disutility cost or a utility cost, according to the attitude or purpose of the person incurring that cost. Thus, the effort which I expend doing an errand down town is a disutility cost because of its irksomeness; but it may instead be viewed as a utility cost because I might have expended it enlarging my rose bed. In like manner, something naturally viewed as a utility cost may really be a disutility cost in disguise. Thus, if I give up the cold frame entirely in order to build the sidewalk, the cost of the sidewalk is a utility cost. But, if all the time I intend to replace the lumber from later earnings obtained by doing work which I would not otherwise have done, and actually carry out this intention, then the true cost of the sidewalk is a disutility one, the effort from which this portion of my later earnings comes.

Opportunity cost is a phrase sometimes used to cover a particular kind of utility cost. If a workman's reason for wanting a wage of 20 cents an hour from me is the fact that he can earn this sum from some one else, this sum expresses the opportunity cost to him of supplying me with his service. When a land owner can rent a certain piece of ground for pasture at $130 a year and I want it for a golf ground, then $130 is the opportunity cost of supplying my want.

It is very important to note that utility and disutility costs, being true opposites, are entirely commensurable. That is, I can properly say that a certain utility is of the same significance to me as a certain disutility. In fact, all admit that we make such measurements constantly in that we decide that, after undergoing some particular disutility cost up to a certain point, the reward no longer pays for the sacrifice.

There is at present considerable controversy as to whether disutility costs really play any considerable part in the existing economic order, especially in determining value. One important group of recent writers, the so-called Austrian school, take the negative position; and they have considerably influenced the opinion of others. According to these writers, the fact that persons to whom a laborer's services are worth much more than 20 cents per hour have to pay only that amount is due to the other fact that such labor has a utility or opportunity cost of only 20 cents. At the opposite extreme stand some who

hold that the price of such labor reaches 20 cents because, and only because, this expresses the disutility of supplying said labor. In the present course, it is taught that both utility and disutility costs have a share in determining value.

2. Kinds of Disutility Cost.

(a) Disutility Cost of Labor. It is obvious to every one that labor involves one or more disutilities, and that these constitute a cost of production in some sense, if not a true economic cost, *i.e.,* one which becomes effective in the economic realm. The most conspicuous of these disutilities are (1) the irksomeness of the labor itelf when continued beyond a certain point, and (2) the loss of leisure which might give opportunity for positive enjoyment.

(b) Disutility Cost of Supplying Capital. Again little argument is needed to show that, speaking generally, the supplying of capital involves a disutility, and, so, is in some sense a cost. The man who furnishes capital doubtless gets back a full equivalent; but, then, he gets it back *at a later period.* In short, he must incur the sacrifice or disutility of **waiting.** Now, it is no doubt true that this waiting is not a cost in just the same sense as is labor. Further, it is not unlikely that, in a complete theoretical analysis of the matter, some more precise designation than the word cost could be found for this particular sacrifice of waiting. It is even probable that they are right who say that the sacrifice made by the man who devotes his capacities to producing something which takes time as well as labor (something for which he must wait as well as work) really consists, not in an addition to the cost, but rather in a deduction from the return. But, however this may be, there is no doubt that we have here *a sacrifice which must be undergone* if time-consuming methods of production are used which sacrifice is additional to the sacrifice that is incurred if only methods not requiring time are used. That sacrifice, therefore, is an additional cost in the sense in which the term was defined above as *some sacrifice which has to be made if production is to take place.* The product requiring time-consuming methods must have a significance to the producer greater than that of the non-time-consuming one. The latter must have a capacity to give him satisfactions sufficient to offset the sacrifice of labor which it involves, but need not have more. The time-consuming product must have

a capacity to give satisfactions sufficient to offset the sacrifice of the labor involved *and also that of the waiting involved.* On this point there is practically no disagreement. This being true, the controversy becomes chiefly *one of words.* As the term cost is naturally understood by an ordinarily intelligent person, *waiting is a cost of production.* To find any other term which will better describe its relation to the case would be extremely difficult, if not quite impossible.

Another objection to the doctrine that waiting or abstinence is a cost of production which is often urged, is that most men who accumulate much capital have such large incomes that they could not spend those incomes if they tried to. To them, therefore, saving involves no true abstinence, or anyhow no deprivation. The answer is this: to say that providing any particular factor of production involves, in general, a disutility cost, is not to say that this is true *in every single case.* All admit that labor involves such a cost; but some labor is positively pleasurable. So, it is possible that some men are in such a situation that spending their incomes would involve more disutility that saving them. These facts, however, do not justify us in denying that labor and capital, taken by large, involve a disutility cost. To be more specific, all such questions turn on what is called the *marginal* portion of the supply, that is, the portion last supplied, or the portion which would be withheld if any were. This part of the output of anything is the *significant* one,—the one we have to take special trouble to secure. The men who supply it hold the key to the situation. They must be satisfied; and to them labor and capital have disutility costs. We therefore say that this is true of labor and capital, generally speaking.

(c) Disutility Cost of Undertaking the Entrepreneur Function. We have seen that the distinctive function of the entrepreneur is to assume the responsibility of production. We also noted that this is in large measure a function which must be undertaken by capital or at least by property;—the entrepreneur can not normally induce the outside capitalist to supply capital as waiting power unless he (the entrepreneur) has property which can be pledged to insure the capitalist proper against loss. Now, in thus staking his property on the success of the productive process, the entrepreneur surely suffers disutilities. Not to dwell on the psychological element of anxiety and general

sense of burden, he manifestly *assumes the risk* of losing his pledged property in whole or in part. For, of course, there is always present the danger that there will take place unexpected changes in conditions of such a character as to cause him to lose more or less of his property, anyhow of the value of that property. In so far as such losses in value occur with considerable regularity in the life of a business so that they can be averaged and covered by an addition to selling price, they do not constitute a new kind of cost, but merely an addition to the amount of those kinds already discussed. The persons engaged in the productive process must simply undergo more of the same old sacrifices, labor and waiting. But there are many value-destroying changes which, in the business lifetime of the individual entrepreneur, show no such regularity, submit to no average, and so can not be covered by an addition to price. To the individual entrepreneur such losses are final, never-to-be-recouped, losses. Assuming the risk of suffering such losses involves to most persons a disutility different from, additional to, any yet considered. Doubtless some people of gambling temperament enjoy assuming such risks, and so would rather take them than not. But, in my opinion, this does not represent the ordinary entrepreneur attitude of mind, anyhow not that of the marginal entrepreneur,—*i.e.*, the one who is least disposed to stay in the business, who would be the first to quit were conditions made more onerous. If this is the correct opinion, then responsibility-taking must be viewed as one of the disutility costs of production—one of the *sacrifices which have to be made if production is to go on.*

(d) Disutility Cost of Land. Land, as understood by most economists, is the indestructible substratum of nature's share in production, position on the earth's surface. It, therefore, can not be produced and, so has no *primary,* original, disutility cost. But, when land is wanted and the quantity of it is scarce relatively to wants, it of course will come to have value like any other thing which is wanted and scarce; and when land thus comes to have value, the *owning of it* comes to involve the *burdens* (as well as advantages) which belong to all owning of wealth. That is (1) the owner must forego the enjoyment of some immediate, present, form of wealth which he could get with the money tied up in the land (to use the business man's language); and (2) he must run the risk of having the value

of the land decline. In short, owning the land involves the two disutilities which, as already shown, attach to capital, *viz.*, waiting and risk-taking; though, in the case of land, these disutilities present themselves as *derivative,* not original, disutilities. But, while supplying the land factor in production comes to involve disutility costs, these are not new ones but those already brought out as attaching to capital. Hence, summarizing this whole account of disutility costs, we may say the chief costs of this sort are three: (1) labor, (2) waiting, and (3) risk-taking.

3. Utility Costs.

We have already seen that a thing has a utility cost provided the production of that thing involves sacrificing some other thing which would have supplied one or more utilities. It is evident that supplying any one of the three factors, land, labor, and capital, may involve such a utility cost; for any one of them may be put to different uses, and any one of these uses may be conceived as a cost in producing one of the others.

4. Money Costs.

The disutility and utility costs just considered are to be conceived as sacrifices made by the persons acutally participating in production. They are often spoken of as the real costs of production or simply costs. In contrast we have the **money costs (often called expenses),** the outlay in money which entrepreneurs have to make in order to get the various elements which they need in their productive operations. This statement, however, must be interpreted so as to make money costs include any sum which the entrepreneur *allows himself* for factors or services which he might have bought but which, in fact, he himself supplies. Thus, if the entrepreneur himself works as manager or bookkeeper or clerk, he allows himself wages, and we should count these as part of the money cost. So, if he has capital invested in the business—surely he almost always has,—he allows himself interest on this capital, and that interest we include in the money costs. True profits, the return going to the entrepreneur as such, *i.e.,* to the entrepreneur ignoring his contributions as a laborer or a capitalist,—these are the reward of a service which could not from its very nature be bought on the market; this element would not, therefore, be counted as part of money costs. However, it will be included in entre-

preneur's costs, which will be explained in a moment; and, in this course, it will usually be included when the word cost is used without any qualifying term.

It would probably be granted by every one that money costs in some sense and degree represent the real costs of production, though opinions would differ as to the exactness of such representation. Those who believe that utility, opportunity, costs play the decisive part in fixing rent, wages, and interest, naturally look on money costs as quite closely corresponding to utility costs. Those who believe that disutility costs have much to do in determining wages and interest, look on money costs as a fairly precise expression of disutility costs. Money costs are, in any case, of much greater significance in economic science than real costs of either sort, since they are the only available expression of such costs. Granting that a knowledge of the sacrifice made by laborers or capitalists is important to us, it is plain that we can get such knowledge only by assuming that the extent of the sacrifice is expressed in the money prices which we have to pay to get men to undergo such sacrifice.

In enumerating the money costs, it would perhaps seem natural to group them just as we group the real costs which they more or less fully express; and this could be done in a rough way. That is, we could reduce substantially all money costs to the money value of labor, of waiting, and of risk-taking, or in other words to wages, interest, and profits. But a good deal of the labor, waiting, and risk-taking which enter into the cost of a particular commodity, come over from the *past* in the shape of goods which were earlier produced and are now being used in the current process. The price which the entrepreneur has had to pay for these goods has often departed more or less from that price which expressed their real cost, and so we can not use the latter as an equivalent of their cost in the current productive process. It is therefore best, in reckoning money cost, to set down the actual market value of past products used, without attempting to analyze them into their *ultimate* money costs—wages, interest, and profits. We have, then, as the apparent money costs of production the following:

(1) Rent of the site.
(2) Hire (rent in popular usage) of buildings or other durable capital goods.
(3) Money value of capital goods consumed, such as raw materials, tools, machines, etc.

(4) Wages of current labor,—covering labor of all kinds, including both wages in the ordinary sense and salaries.

(5) Interest on all the money capital currently invested in the business where such interest is not already covered under preceding heads.

Comments: (a) The case of rent as a money cost presents considerable difficulties. The more othodox doctrine makes it sometimes a cost, sometimes not. As already brought out, in so far as it represents disutility costs at all, these are not original but derivative. Being such, they are important in some cases, *e.g.*, questions of justice in distribution; unimportant in others, *e.g.*, in questions of value or price determination. But rent sometimes represents a utility or opportunity cost. In that case, it is important in problems of value or price but not in problems of distributive justice. But these nicer matters of theory will necessarily come up again in other connections. Generally speaking, all are agreed that rent is a money cost to this extent that the individual entrepreneur is usually constrained to treat it as one of the outlays which are prerequisites of the productive process.

(b) Costs (2), (3), and (4) need no comment. Number (5) is not quite so simple. It includes, first, interest *paid out* by the entrepreneur to others from whom any part of his capi- is borrowed, and, secondly, interest credited to himself on any capital which he has himself put into the business. The first is a plain case. The second perhaps deserves a word. Suppose the entrepreneur buys with his own money, say, $40,000 worth of lumber to be worked up into furniture. Evidently the resulting furniture costs this $40,000 anyhow—this item being covered under cost No. (3);—but, in addition, it costs interest on the $40,000 for the period ordinarily required from the time the lumber is bought till the furniture is sold and paid for. Supposing this period to be one year, then with interest at 5½ per cent., we have here a cost of $2,200, which must be charged to the furniture and credited to the entrepreneur. In a similar way, if he uses $20,000 worth of machinery, the cost of keeping it up,—repairs and replacement—will be provided for under cost No. (3); but interest on $20,000, *i.e.*, $1,100, must also be earned, and this must be charged to the furniture and credited to the entrepreneur. Similarly, if he finds it necessary for the efficient running of this business to keep a balance with his bank of, say, $800, interest on this, $44, must be charged to the furniture and credited to the entrepreneur.*

5. The Entrepreneur's Cost.

The particular kind of cost having greatest practical significance in economic discussions is cost to the entrepreneur, the

*Remember that we are here talking about capital which he himself puts in. If any of these items are covered from borrowed capital, their interest is provided for in the first part of this paragraph.

responsible producer; for his sacrifice plays a large part in determining the prices of goods. Cost to him might very naturally be looked on as breaking into two parts: (a) Money outlay, (b) All sacrifices undergone by himself, *e.g.*, in supplying the capital which he himself furnishes. in performing different kinds of labor, in taking the responsibility of having production go on. In practice, however, the entrepreneur usually divides cost in the way already hinted at. That is, such parts of his own contribution as could be bought on the market and. so, have known prices, he reckons in terms of money, just as if he had purchased them from other people. This leaves only one cost unprovided for, *i.e.*, the sacrifice or disutility of assuming the responsibility of production which necessarily forms a class by itself. According to this analysis, Entrepreneur's Costs classify as follows:

(a) Money Costs.
(1) Actual outlay of the Entrepreneur.
(2) Expression in money of the Entrepreneur's contributions, in so far as they are purchasable.

(b) Real cost or sacrifice of assuming ultimate responsibility,—this having its objective expression in money profits.

It is Entrepreneur's Cost which we shall usually have in mind when employing the term cost without a qualifying term. That is, we shall commonly mean by cost money cost, as already defined, plus such amount of profits as is necessary to insure the entrepreneur's continuance in the business.

Illustrative Problems.

1. Suppose that a Crusoe has some article, say an umbrella, which he considers quite indispensable, and that he is reflecting on what it would cost him to replace it, if it were destroyed.
   (a) Make a hypothesis under which that cost would present itself as a utility cost.
   (b) Make a different hypothesis changing the cost to a disutility one.

2. Suppose that Crusoe looked on his umbrella as having a utility to him which he estimated at $10. Suppose, further, that he could make another just as good with five days' labor and that he estimated the disutility of a day's labor at $1.
   (a) What is meant by the last clause?
   (b) Is it reasonable to estimate the disutility of a day's labor in such a way?
   (c) What value would Crusoe probably set on the umbrella? why?
   (d) What would determine that value—utility or cost?

3. Here is a site which yields each year a net income of $1,000, and which will presumably keep on doing this indefinitely. Seemingly such a site ought to be worth $1,000 multiplied by infinity, or, as human beings can not be expected to reckon so far ahead, let us say by 100; that is, it ought to be worth $100,000. As a matter of fact, the site would not be worth more than $20,000. How do you explain the discrepancy?

4. We often hear people complain of what they consider the unreasonable profits of druggists or other merchants, saying that these dealers clear from fifty to one hundred per cent on a large part of their sales, while they have no right to more than eight or ten per cent. Does the fact that fifty or a hundred per cent are cleared on individual sales prove that a merchant gets more than eight or ten per cent real profit?

5. Suppose that democratic socialism has replaced the present order so that the state, governed as a democracy, is the sole landlord, capitalist, and entrepreneur, hiring its citizens to labor at the various kinds of work needed, paying them wages, and selling them the various kinds of goods produced.

(a) Show that it would be desirable from time to time to increase the amount of capital at the disposal of the state.

(b) Show that this increasing of the capital would require abstinence on the part of the citizens. (Under a democratic socialism, effort would doubtless be made to distribute this burden equally for the time being.)

(c) Show that, in the long run, equity, as commonly understood, would require that the state should charge a higher price for a product costing a certain amount of labor plus five years of waiting, than for another product costing an equal amount of labor and only one year of waiting.

(d) What money cost in our system would this difference in price represent?

6. The stockholders of a bank put into the business only $100,000; yet the bank takes in five or six per cent interest on loans which amount to, perhaps, $900,000. Must we not say that such a bank is making outrageously large profits? No. Explain.

Section D. **What is it to Produce?**

Up to this point we have assumed that the general nature of production is so well understood that no discussion or explanation of this point is needed. This procedure was perhaps justified in that (1) up to this point we have had little if any need for a clearly defined conception of production, and (2) such a conception could not be worked out at all easily before the analysis which we have given had been mastered. Now, however, we must go into this matter somewhat fully.

1. The Word Production will be used in Different Senses.

It is no doubt theoretically desirable to employ every scientific term in just one sense. But, in fact, such precision is rarely possible and under actual conditions seldom expedient. Such a course would require us to neglect important points of view or spend much of our time coining new terms. Production is a word which most of us, probably, use in several different senses, some broader, some narrower. This will doubtless continue to be the case; and little harm need result, if we are careful to preserve consistency in the matter. The gravest danger is that we shall affirm or deny that some one produces *in one particular sense,* and then in a moment deduce practical consequences from our affirmation *as if it had been made in a quite different sense.* Thus, there is a proper enough meaning of the word producer which permits its application to the market-gardener but not to the grocer. But, if we say "the grocer is not a producer (in this sense) therefore he is *a parasite,*" we are confusing two quite different meanings. In the sense that a producer is one who extracts or grows or makes some particular thing, the grocer is not a producer. In the sense that a producer is one who does something which contributes to the satisfying of our wants, the grocer *is* a producer; and so, of course, he is not a parasite, since a parasite is a person who *takes without giving* anything in return.

2. Broad Meaning of Produce.

The meaning of produce which will be most used in this course and which probably has most vogue among present-day economists, may be brought out by the following statement: To *make any contribution to the satisfying of human wants, whether this is done by persons or things, provided said contribution has a price or value, is to produce.* The idea of this definition is to recognize as productive anything which is responsible, in any sense or degree, for the existence of the product, provided it has an economic character. That such a way of conceiving production is reasonable ought not to be difficult to show. That, in general, we naturally go as far as possible in admitting *whatever is responsible for the product,* seems almost self-evident. Surely the fundamental reason for calling any act or thing productive is the fact that the existence of the product is conditioned upon it; and it would not appear on the

face of things reasonable to shut out the supplying of one condition while admitting another,—to call the raising of strawberries productive, the carrying of them to market unproductive, or to call the making of a lawn mower productive, using it to mow a lawn unproductive. Our real difficulty, then, is to justify our definition in respect, not to its breadth, but rather to its narrowness. Can we reasonably put in the qualification: "provided said contribution has a price?"

In the light of previous discussions, an affirmative answer is inevitable. We are studying *economics, not physical science.* The sort of production we are concerned with is economic, not physical, production. But economics, as such, takes account only of those things which are economic,—*i.e.,* which have to be treated economically, have value or price. Our definition of production, therefore, has to be restricted to acts or conditions which have a price.

Comments: (a) The emphasis laid on price in the above definition must not lead the student to imagine that said definition would be quite unsuited for an economic order radically different from the present one, *e.g.,* communism. In such an order, value would still be used to express the relative importance of things; and the communal bookkeeping would credit something of the product to such factors as possessed an economic character—had value—but not to the others.

(b) The emphasis laid on price or value must not lead us to imagine that to produce is to be *responsible for the existence of value.* It is, of course, the production of wealth that we are talking about; and, since wealth has value, it might seem that to produce one must create value. But this is a mistake. The producer as such is not responsible for *every* element in wealth, but only for its *fitness to satisfy wants,*—its utility. His task is to do whatever needs to be done in order to give wealth this fitness—this utility. Many obstacles stand in the way of having things just right to satisfy wants. Many conditions must be fulfilled before the result is reached. To overcome any of these obstacles, to fulfill any of these conditions, is to produce. Now, these conditions must be fulfilled before people will want things and, so, before things will have value. The producer, therefore, is contributing toward the existence of value. But something more is necessary which the producer does not supply, *viz.,* a demand on the part of others. Still another thing is necessary which he is really neutralizing, *viz.,* scarcity. Accordingly, it is not proper to describe production as "the creating of value." We can conceive acts which would tend to increase value which are the very opposite of productive, *e.g.,* destroying a portion of a tobacco or coffee crop.

(c) We have laid so much stress on *utility*, as the element which the producer is responsible for that some further explanation of the term seems needful. In general the economist means by utility *capacity to satisfy wants*. More particularly, he applies the term to any such capacity, whatever be the particular want involved. Thus, the capacity to give one aesthetic enjoyment or even vicious enjoyment is utility. To the economist, diamonds and whisky are just as truly useful as coal or bread.*

Still further defining the economist's use of this term, it should be said that utility includes not merely those conditions which *inhere*, so to speak, *in the object itself*, but also those conditions which *consist in the relations of said object to men*. Thus a loaf of bread situated *in a place where it is wanted* is more useful than an exactly similar one situated *where it is not wanted*.

Accordingly, the economist recognizes several kinds of utility which at first have a strange sound. Thus, he talks of *place* utility, illustrated when the bread is carried from the place where it is not wanted to the place where it is wanted; *time* utility, illustrated when ice is kept from the cold months when it is not wanted till the warm ones when it is wanted; and *ownership* utility, illustrated when a commodity passes from the hands of one who has no need for it to those of one who has such need. More obvious forms of utility are *elementary* or *substance* utility, illustrated where copper is gotten out of the mines of the Lake Superior region ready to be used in the making of wire; and *form* utility, illustrated when that copper is made into wire ready to be used in carrying an electric current.

(d) It is hardly necessary to say that those who favor the broad definition of production which we are now considering, include among producers not only those who supply **commodities**, *i.e.*, material objects having value, but also those who supply **personal services**, *i.e.*, desirable changes in the conditions of objects or persons effected by other persons and having value.† See Reading IV.

(e) It is hardly necessary to say that acts which are productive under one set of conditions may not be productive under another set of conditions, in that they contribute to the

*This of course does not mean that the economist holds different ideas from other people as to the relative importance of necessaries and luxuries or as to the undesirableness of whiskey-drinking. But, from our standpoint, it is necessary to recognize the *common* element in diamonds, whiskey, and bread, *i.e.*, the capacity to satisfy human wants; and utility seems to be the only suitable word for the purpose.

† Commodities and services are contrasted most sharply in that the former can be delivered to the person who buys them *after* they have been made,—independently of the producing process; while services can be delivered to, appropriated by, the person who is buying them, only *while* they are being produced. Services are usually changes in the condition of the property or person of the one who buys them. In consequence, they must usually be produced *in connection with* such property or person.

satisfaction of wants under the first set but not under the second. In particular, some acts which are useful under the present economic order might not be under socialism. Persons performing such acts would therefore be producers in the first case but not in the second.

(f) It does not follow from our account of the nature of production that every one whom it accounts a producer really deserves the share which he gets for his contribution. Thus, it may be that the legal arrangements under which he is permitted to control a certain factor of production, say land, and so to make a certain contribution to production, are quite wrong. But, so long as those arrangements prevail, the contribution has to be imputed to him, and so he is a producer. The controversy, however, really belongs to a later division of the subject, *i.e.,* Distribution.

(g) If we wish to express ourselves with precision, we should attribute to each producer the particular commodity or service for which he is *immediately responsible.* Thus, the farmer produces, not bread or flour, but wheat. The miller produces not bread, but flour. The employees of the miller produce not flour, but services, which the miller combines with the services of various machines and wheat in such a way that ***he*** produces flour.

Illustrative Problems.

1. Is it fair to say that the conception of produce held by a man who calls all non-producers parasites is the same as the one we have been considering?

2. "St. Thomas is not a producing island. Its importance consists in its position as a harbor of refuge and a coaling station, and as a place for refitting vessels." Show from the passage that St. Thomas *is* a producing island, as we understand the word.

3. Have the playing cards of a gambler utility? Are they wealth? Has a diamond ring utility?

4. A man who is getting no income now but expects to have one six months from now borrows $100 from his neighor, promising to pay back the $100 and $6 more at the end of a year.

(a) Does the $6 represent any advantage,—service,—received by the borrower?

(b) If so, can the lender reasonably be credited with the production of that service?

5. "Only miners, lumbermen, farmers, and such like ought to be called producers; for they are the only ones who *add* something to the total wealth. The rest merely change the form or relations of the things which the above-named produce."

Show that there is no essential difference in the contribu-

tions of the farmer, the miller, the baker, the grocer, and the delivery man.

6. "The Chinaman lives economically. He earns all he possibly can and saves it and takes it back to his native land. He is a very economical consumer, and *instead of being a wealth producer, acts as a leech upon the wealth of the nation,* sucking in all that he can and taking it away to enrich the land of his ancestors." Criticise the part in italics.

7. "Only the people who work with their hands are true producers. All the rest live off them."

Argue that brainworkers, managers, architects, inventors, *et al.* are also producers.

8. "A service is not a material thing but a *satisfaction* produced in us by means of the goods or efforts of other persons." Criticize.

9. Mr. X. hires the opera house for an evening and hires the Mendelssohn Quartette to give a concert in it. I pay 75 cents to hear the concert.

(a) In precisely what does the wealth which I buy consist, the work of the singers, the pleasure I derive from the singing, or something else?

(b) Did the Quartette produce the wealth I bought, or something else?

(c) If the Quartette did not, who did?

10. "Thus there are today tens of thousand of lawyers, bankers, traders, middlemen, speculators, and others, whose functions, *necessary* to the capitalistic regime, would (under socialism) cease to have any value. They would be compelled because of this to enter the producing class."

(a) Show from the quotation itself that, under a reasonable interpretation of the phrase " producing class," the groups of persons named are already in that class.

(b) May the labors of these persons be productive now, although they would not be productive under socialism. Don't forget to explain.

11. "Labor alone is the producer of wealth; take away labor and not all the capital in the world could produce anything."

Allowing the second clause to be true as a statement of fact, does it prove the proposition contained in the first?

12. Accepting the conception of wealth given in these Outlines, the conductor of a street car is a producer of wealth.

(a) Just what form of wealth does he produce?

(b) For whom does he produce it?

(c) Who produces the wealth I buy when I ride in the cars?

13. If we wished to be very precise, could we say that the miner of silver produces *silver*?

3. Narrow Meaning of Production.

For most purposes, most economists nowadays use production in the broad sense already elaborated. In some connections, however, we find it convenient to follow the popular usage which cuts off one class of producers from the rest, representing them as mediators between producers and consumers. I have in mind, of course, *the exchanging class,* who occupy a unique place in the system in that they appear at every stage in the long chain of processes leading from the first-stage producers to the ultimate consumer, mediating between each member of the technical part of the series and his next neighbor. Thus they act as go-betweens between the stock-raisers and the tanners; between the tanners and the shoemakers; between the shoemakers and the shoe-wearers. Accordingly, we often find it convenient to use expressions like this: "It is the function of the exchanging class to correlate producers and consumers." That is, we sometimes use the term producers to include all sorts of contributors to the production of commodities and services *except the exchanging class.* No harm need result from this, if we remember that in the deeper, larger sense, all who contribute in any kind or degree to the existence of utilities are producers.

4. Special Antithesis of Productive and Consumptive.

There is one narrow use of the adjective "productive," though the verb "produce" has no corresponding use, which still has considerable vogue among economists. It is often criticised as inconsistent with the broad use of "produce" above explained, though, as it seems to me, without good reason. This use is illustrated when we say: "The communist wants to have *all* wealth, including *consumptive* goods, owned by the state, while the socialist would limit state ownership to *productive* goods, such as land used for productive purposes, machines, raw material, etc." In like manner, we call the services of the men whom Mr. Knickerbocker hires to work his mill productive, while the services of his coachman are unproductive or consumptive. It may be that, in the interest of clearness, we had better adopt a different phraseology; but I see no inconsistency between this antithesis of productive and consumptive and our definition of produce. This antithesis is concerned, not with the productive *act,* but with the *destination* of the *product* of

that act. Of course, the coachman *produces* just as truly as does the mill hand; but *the thing* he produces, his service, has a *non-productive,* rather than a productive, *destination.*

ILLUSTRATIVE PROBLEM.

"This antithesis of productive and consumptive is all nonsense anyhow. So-called productive goods are merely consumptive goods a little less ripe. The destination of all goods is to be consumed,—to contribute, directly or indirectly, to the satisfying of wants."

(a) Do you think this would be wholesome doctrine for a young man without any property starting out to make his way in life? Explain.

(b) Use this to illustrate the discussion as to what is legitimate analysis appearing on page 39.

Section E. **Capital More Particularly Considered.**

In our discussion of the economic factors of production, we necessarily gave considerable attention to capital because of the controversies as to the propriety of counting it at all. We could not, in that connection, however, make our treatment anything like adequate without rendering it almost impossible for the student to get a comprehensive view of the whole matter of productive factors. Accordingly, we here return to consider some of the most important problems connected with this concept.

1. The Special Function of Capital and the Capitalist.

It has already been explained in a general way that capital, in the broader sense, has two functions in production, *viz.,* (1) to wait and (2) to assume the final responsibility of production. The second of these is perhaps sufficiently plain. The first, which is the office of capital in the narrowest sense, needs some fuller treatment.

If we ask ourselves for the proximate explanation of the superiority of capitalistic methods, we find it chiefly in the fact that through such methods man's very limited powers, capacities, *are reinforced by capacities supplied to him by nature.* Thus, he could do little toward cutting down a tree with his naked hands; but those same hands, armed with a sharp stone or later with a keen-edged axe, find the task relatively easy. This process goes much further when man harnesses to his tasks great elemental forces like gravitation, as, for example, when he employs a

water power. But, now, what is the peculiarity about the capitalistic method of procedure which is necessary to enable it to bring to our aid nature's powers? That peculiarity is this, that, in using said method, the producer reaches his goal by a **roundabout** path. Instead of trying directly to accomplish his object, he first does several other things,—things which *seem,* perhaps, very little related to his ultimate object, but which are after all aimed toward that object in the strictest sense. Instead of trying to get down the tree at once, a man first sets about getting an axe with which to do the work. In the very highly specialized way that production is actually carried on, the woodman does not himself make the axe with which he cuts down the tree. But, looking at society as a whole, the cutting of the tree is the last of a long series of processes having no immediate connection with tree-cutting. Iron ore has to be gotten out, coal also, the latter turned into coke, this used with the ore in getting out pig iron, this transformed into steel and so on. Thus, it is disclosed that *roundaboutness* is a necessity of the capitalistic method.

But, again, it is plain that a roundabout method is usually, if not always, one which *consumes more time* than a more direct method. Of course, this does not mean that for the production of a certain definite amount—assuming it to be a large one—the roundabout method will necessarily prove to be the longer. On the contrary, it is probable that in the end that method will prove to have been much shorter. But, reckoning from the time when the *first steps* toward the goal are taken to the time when *some* returns, however small, are received, the roundabout method is almost always longer. If the primitive fisherman, so often used for illustration, wants food, he surely can get some in a much shorter time than it would take to make a net and a canoe and then use these to catch fish, though, of course, the latter method would enable him to catch *ten thousand* fish in a much shorter time than he could by some more direct method. If now it be conceded that capitalistic methods are usually time-consuming methods, it follows that the resort to these methods usually involves for producers an experience which to most persons is more or less of a sacrifice, *i.e.*, waiting,—we must endure that, between the incurring of the labor sacrifices involved in pro-

duction and the enjoyment of the fruit of those sacrifices, a considerable interval shall be placed.*

ILLUSTRATIVE PROBLEMS.

1. Suppose Mr. A has produced a hundred bottles of grape juice, which he must keep for ten years before drinking or selling it, if he would get the very best wine out of it.

(a) If, now, Mr. B comes along and offers to give Mr. A 100 bottles of wine *which had already been aged for ten years* in exchange for the 100 bottles of grape juice, who would be doing the waiting?

(b) What other costs of the production of wine would he be bearing?

(c) Suppose Mr. B paid Mr. A the money price of 100 bottles of wine for his grape juice, say, $100, who then would do the waiting?

(d) If Mr. B borrowed the $100 from Mr. C, who would do the waiting? What other capitalistic burden would remain? Who would bear it?

2. Even those of us who insist that it is, on the whole, best to distinguish land from produced intermediate goods, admit that the natural working of the laws of price, for the time being, transforms land into capital. Explain this. (A piece of land yields a net money income of, say, $100 for an indefinite number of years. Will it be worth $100+$100+$100+$100+ and so on indefinitely? If not, what will it be worth?)

3. One is sometimes tempted to say that the real nature of capital is best brought out by describing it as *the power to own things*. Argue for the usefulness of that way of looking at the matter.

4. One writer is disposed to find the essential feature of capital in this that it is *superfluous* wealth to its owner,—wealth which he can forego using. Show that this helps to understand the function of capital.

2. Is Capital Productive?

Is capital productive? Is the capitalist a producer? These have been among the most troublesome questions of economic theory. This is due partly to the inherent difficulties of the matter, partly to its great practical significance. In the actual world, the capitalist proper, *i.e.*, the person who does the waiting, and the entrepreneur capitalist have always received a very considerable reward for their reputed share in production. At

*Doubtless, this element of waiting is in some degree present in every form of production; but it may be so small as to be almost negligible, and in so far as it is present in any particular case, the method of production is, strictly speaking, capitalistic.

the same time, there have arisen, in all ages, many protests against this order of things, particularly in the case of the capitalist proper. During many centuries, governments and the church stigmatized as wrong the taking of interest, and attempted to suppress it altogether. In modern times, the attitude of the authorities has changed and interest-bearing is practiced with general approval. Even yet, however, a considerable section of the population—especially the advocates of socialism—believe that the capitalist gets a return to which he has no valid title. Naturally, these opponents make the alleged productivity of capital their chief point of attack. Labor is the sole factor in production; capital produces nothing and so has no right to share in the product,—is their contention. In addition to these opponents of interest, there are not a few professional economists who, though looking on interest as perfectly legitimate, still deny that we can properly describe capital as productive. It is, therefore, almost necessary, even in an elementary course, to give some attention to the problem.

As already implied, the claim that capital is productive is attacked chiefly by two groups, *viz.*, (1) those who think interest quite wrong, having no correspondence to any service of the capitalist, and (2) those who approve interest, attributing to the capitalist a service but not one which can properly be described as productive. As between economists generally and the first group, the difference is manifestly very *real and fundamental;* but, as between those who frankly call the capitalist productive and those who affirm that, although he performs a quite necessary service for which he can reasonably claim compensation, still the supplying of this service can not properly be designated production, the difference is obviously one of mere words, or, at best, of mere theoretic precision. In the former case, it seems necessary to go into the matter somewhat fully. We can hardly afford to leave in doubt the question whether capitalists make a contribution to the productive process. The second controversy, however, can be left unsettled without materially affecting the student's comprehension of elementary economics. Its further consideration, therefore, will for the present, anyhow, be waived.

Taking up, then, the quarrel with the socialists, does the capitalist as capitalist perform any service,—make any contribution to the productive process? That the capitalist is a producer in *one* sense, *viz.*, in the sense that, having bought the capital good,

e.g., a net, he *represents, performs by proxy, the labor necessary to produce the net, and, so, may reasonably enough be credited with so much of the product as is naturally credited to said labor,* —so much all would admit. Thus, if the net costs 30 days of labor, lasts 90 days, and, in that time enables the fisherman to catch 9000 fish, making the average productive capacity of the 120 days of labor 75 fish, then no one would object to saying that the net—and so the capitalist who owns it—produces 30 times 75 fish or 2250;—no one would seriously object to saying this, though the socialist would prefer to say that the 30 days of labor used in making the net really produced these 2250 fish. But I hardly need say that, in claiming that the capitalist as capitalist produces, *we mean something more than this.* In the actual world, the net or its owner, would be credited with more than 2250 fish,—let us say 2520 fish. But this would leave out of the 9000 for the 90 days of labor used in catching the fish only 6480 or 72 fish per day. But, if a day's labor had to be content with 72 fish when *using* a net, it would have to take the same pay when *making* one; *i.e.*, the share of the *total* product credited to the net which would be credited to the labor spent in making that net would be only 30 times 72 fish or 2160. Thus, out of the 2520 fish going to the net, there would be a *surplus* of 360 which would be credited to the net *as something over and above the labor used in making it.* This is something like the way things *actually work.* Now, the problem before us is this: Do these 360 fish which are credited to capital *as capital* represent, in some sense or degree, a *contribution made by capital as capital?* Granting that the word "produce" is not a good one, that the 360 fish going to capital as capital make too large a share, is it not, after all, true that capital as capital, that the capitalist as capitalist, has made some contribution to the result? It seems to us that the answer must certainly be an affirmative one. We will put the argument for it into a series of formal propositions.

(1) Conceiving capitalistic production, as compared with non-capitalistic, to be merely *a different method of utilizing labor,* all admit that it is a *more efficient* method,—it gives a surplus of product over the non-capitalistic method. (2) The choice of the more efficient capitalistic method involves the choice of a *more time-consuming method.* (3) The choice of this more time-consuming method necessitates an *increase of*

the waiting-sacrifice element which is involved in all production. (4) To this increase, (excess, surplus) of the waiting element must be credited, in a mere physical, technical sense, the increase in product effected by the capitalistic method; that is, *this excess of the waiting phase of labor must be described as producing, in the technical sense, just as truly as does the effort phase of labor.* (5) Unless the supply of waiting power is so great that we do not need it all, *i.e.*, unless it is practically a free good, such as air, then the assuming of the burden of waiting must be *economically* credited with at least some part of the increase in product due to the employment of the time-consuming method. (6) Finally, the supplying of this condition—the assuming of the waiting burden—is undertaken by the capitalist as capitalist and, therefore, the product credited to waiting must be credited to the capitalist as capitalist.

3. Different Kinds or Forms of Capital.

Up to this point in our discussion of capital, it has scarcely been recognized that any doubt could exist as to just what ought to be meant by the word capital. In fact, however, there is much controversy on this point. It would probably not be difficult to distinguish as many as twenty different definitions of capital; and in an advanced course, we could hardly pass this point without making a more or less thorough study of the question: How ought the word capital to be defined? But, at present such study would probably bring more confusion than enlightenment. Further, that study is the less necessary in that the differences of opinion on this matter are commonly much less important than at first sight seems to be the case. In fact, the same person may, and usually does, make more or less use of several of the meanings which he formally rejects. Accordingly, we shall not here attempt to settle the question of the proper definition of capital. We shall, however, discuss briefly *the different kinds and forms* of capital; and, in doing this, we shall incidentally bring out some of the more important variations from what may be called the orthodox definition of the term.

(a) The definition which has been implied thus far in our discussion and which probably may fairly claim to be the most orthodox, makes capital to consist of *intermediate products,* or *produced goods devoted to further production.* Understanding capital in this sense, one of the oldest distinctions is between

fixed and circulating capital. By fixed capital is meant capital like a tool or a machine, which *gives off more than one service.* Circulating capital, in contrast, is capital which does its part in a single use,—*gives off but one service, e.g.,* the raw material used in making a wooden box or the coal burned in a steam engine.

(b) A second contrast is between specialized and general capital. *Specialized* capital is capital which is fitted for one purpose only or anyhow for a very few purposes, *e.g.,* a planer, a copper stamper, a printing press.* *Generalized* capital is capital which can be put to any one of many uses, *e. g.,* coal, pig iron, and, most of all, money.

(c) A distinction which has already been brought out in another connection is between *formal* or *money* capital and *real* or *goods* capital. The fund of money or bank credit which the true capitalist is accumulating and which he or some borrower uses to buy capital goods may be called *formal* capital; while the actual goods, the engines, machines, coal, etc., which are being produced to be sold for the money fund may be called the *real* capital. Here, however, the student must be careful not to imagine that the person accumulating the money fund is not producing real capital. Ultimately, he is responsible for the existence of the real capital, the engine, machines, *etc.* The men who, literally speaking, produce those goods are virtually only his agents. In a very important sense, he is himself producing those goods and lending them to entrepreneurs, though formally he lends a fund of money to entrepreneurs who thereupon buy the goods.

(d) The preceding distinction of formal or money capital over against the real or goods capital suggests another closely allied one between *invested* and *free* capital. In view of the fact that, in the present order, the primary form in which capital is accumulated is a *fund of money,* it is natural, perhaps inevitable, that the process of devoting capital to a given enterprise should be described as *putting it into, investing it in,* the said enterprise. Accordingly, capital which has already been put to use is called *invested* capital; while that which is waiting to be put to use is called *free* capital.†

(e) Up to this point, we have had in mind a rather narrow

*The term fixed capital is sometimes used in this sense.
† Also frequently called idle capital.

concept of capital, *viz.*, intermediate goods, products devoted to further production. If, now, we broaden our use of the term, as almost everyone does, to include all goods which serve their owner *indirectly, i. e.,* by supplying him with *other* goods, thus making capital synonomous with *income-getting goods,* then it becomes necessary to recognize another distinction between *social* capital and *private* or *acquisitive* capital. By the former is meant the kind of capital usually had in mind in preceding discussions, *i. e.,* products used in producing other products. Such capital is income-giving *even from the social point of view.* By *private* or *acquisitive* capital, on the other hand, we mean capital which, though not used to increase the total volume of goods and so not income-bearing from the social standpoint, does yield an income to its owner, *e. g.,* a gasoline launch rented to a summer-resorter.

(f) The distinction last commented upon arose because we extended the concept of capital somewhat beyond the strict orthodox limits. Obviously, we shall have other new distinctions arising if the concept is still further extended. One new way of conceiving capital, which with a number of economists has seemingly displaced the old idea altogether, makes capital to consist of *a fund of value* embodied in the things commonly treated as capital rather than to consist of *those things themselves.* This way of looking at the matter some economists are disposed to admit, not as displacing the old concept, but as a more or less useful alternative. In such case, we have a new distinction of *pure* or *value* capital and *concrete* or *goods* capital.* Even those who doubt the soundness of this distinction are almost compelled to use it more or less on account of the ambiguities in which current controversies have involved the word capital.

(g) Some writers are disposed to extend the term capital to include *durable* products even when these are devoted to consumption, *e. g.,* a dwelling house occupied by its owner. Though there is doubtless something to be said in favor of this practice, probably most of us think the older usage preferable. In some cases, however, we may find it convenient to speak of *producers'* capital, meaning the kind of capital originally had in mind, and *consumers'* capital, meaning consumers' goods

*With those who adopt this notion of capital to the exclusion of the old, only *value* capital is capital at all. The engine, machines, etc., are merely capital goods.

which have a durable character, last for a long time, give off many uses.

(h) As we learned earlier in the chapter, some economists insist on including land along with the goods usually designated capital. This fact makes it convenient, sometimes, to distinguish *natural* and *artificial* capital.

(i) It is occasionally convenient to speak of *personal* capital, meaning the bodily or mental capacities and aptitudes of human beings; though most economists consider such language figurative. Capital is only a kind of wealth or wealth looked at in a particular way. But personal capacities, not being transferable, cannot have exchange value, hence cannot be wealth, and, therefore, cannot be capital.

ILLUSTRATIVE PROBLEMS.

1. "Is the ordinary laborer in any sense or to any degree a capitalist?"

Give two or three reasons for an affirmative answer.

2. A man, let us suppose, has no tools besides his own hands, but uses these to pull the weeds and grass from about some wild strawberry plants which he finds already established.

(a) Show that such a method of production is capitalistic.

(b) Show that it is capitalistic in that it involves the employment of intermediate products. What is the intermediate product in this case?

3. One man performs a certain amount of labor in connection with a vineyard and has for sale a bottle of grape juice worth thirty-five cents. Another man does an equal amount of work, then waits five years, and has a bottle of wine worth one dollar ($1.00).

(a) Show that the second process is more capitalistic than the first.

(b) Precisely why does the more capitalistic method prove more efficient?

4. Question: "How is it that capital increases the efficiency of industry?"

Answer: "Capital is necessary to enable an entrepreneur to rent a site, put up buildings, and buy machinery and materials. Without capital he could not produce at all. So of course capital increases the efficiency of industry."

Show that the answer does not go deep enough.

5. Why is it a natural metaphor to call an artist's skill his capital?

CHAPTER III.

THE CONDITIONS AND LAWS OF PRODUCTIVE EFFICIENCY.

It is hardly necessary to emphasize the point that all are interested in maintaining for the community a high degree of productive efficiency. Doubtless the extent to which individuals profit personally from such efficiency is subject to great variation. But we can scarcely conceive any one so situated as to gain nothing from it. Little defense, therefore, is needed for giving some attention to this topic. Here, however, a caution is needed. Political Economy does not attempt an exhaustive study of the conditions of productive efficiency. Such a study rather belongs to the technical arts, agriculture, mining, engineering, etc. Our task, in contrast, is to set forth the more general principles governing productive efficiency.

Section A. **Capitalistic Methods.**

In another connection, we have already brought out the nature of capitalistic production as being production wherein *intermediate products* play a part as well as nature and labor. In our day, practically all production is capitalistic production. But there are marked differences in the degree to which the industries of a particular city or country are capitalistic, as compared with those of another city or country, as also in the degree to which particular industries of one country are capitalistic as compared with other industries of the same country. A few industries, from their very nature, seem unable to use much capital. But, generally speaking, industries can commonly use about all the capital they can get. Further, in thus increasing the amount of capital employed, they seem able to increase their efficiency per unit of land and labor. The principal explanation of this increase in efficiency was brought out on pages .., *viz.*, the fact that through the roundabout method we are able to reinforce our powers with nature's powers. In the beginnings of industry, the gain thus achieved by introducing methods which are more capitalistic is simply enormous; *e.g.*, making a net and

boat and using these in catching fish instead of depending on one's hands alone. Even in later stages of development, some invention like the dynamo will give a startlingly great increase to our productive efficiency. This truth with respect to our dependence on capitalistic methods for high industrial efficiency is so familiar as to need little comment. Still it is not infrequently overlooked in times of popular excitement; and legislative measures are adopted and enforced which discourage the accumulation of capital or drive it out of the community. It is, therefore, needful to have the general principle in mind.

Principle. *In general, the productive efficiency of any community varies* directly as the extent to which it employs capitalistic methods.*

Section B. **Specialized or Heterogeneous Cooperation.**

We have already seen that the present economic order is essentially a cooperative one, though the form of cooperation carried out in it is spontaneous rather than conscious and formal. We have also seen that most of the gain resulting from this cooperation is from the heterogeneous form, *i.e.*, the form in which one person supplies one element; another person, another element; and so on,—in other words, the form of cooperation in which there is specialization. This specialization, I hardly need say, applies not only to labor but also to land and capital—though the conventional phrase, "division of labor," suggests that we have to do only with labor specialization. The student will have no difficulty thinking of many illustrations of land and capital specialization. Putting into formal shape this fact that specialized cooperation increases productive efficiency, we have the following

Principle. *In general, the productive efficiency of any community varies directly as the extent to which specialization in the use of the different factors of production is carried.*

Among the considerations which explain the superior efficiency of methods involving such specialization, the following are of importance.

(1) Specialization utilizes *all* instruments and agents, even the inferior ones.

*In economics, the phrase "varies as" does not involve *proportionate* variation. "To vary directly as" means to vary in the same direction, though not necessarily to the same degree. "To vary inversely as" means to vary in the opposite direction, though not necessarily to the same degree.

(2) It utilizes superior instruments and agents *most fully.* (The instrument capable of large work is not wasted on small things.)

(3) It utilizes natural aptitudes (applying to lands and men).

(4) It permits the creation of artificial aptitudes (applying to intermediate products and men).

(5) It economizes in time (applying to machines and men).

(6) It shortens apprenticeship (applying to men).

(7) It stimulates invention and other improvements.

It will be an excellent exercise for the student to work out illustrations of each of these advantages of specialization.

The preceding discussion has emphasized the fact that specialization—specialized cooperation—contributes greatly to productive efficiency. But, if specialized cooperation is conducive to productive efficiency, then of course any condition which is requisite to such cooperation is conducive to productive efficiency. Now, as brought out at the very beginning of our study, *exchange* is such a requisite;—under the present order cooperation is made possible through exchange, trade. In order, then, to take advantage of the principle that specialization increases efficiency, we must exchange products with one another. But, further, the extent of the possible specializing is limited by the extent of the exchanging. If we trade with only a few people the need for a single kind of goods will be too small to justify setting some one person to producing that kind only. The amount wanted will not keep him busy. Hence, we have the following

Principle. *The extent to which specialization can profitably be carried varies directly as the extent of the market.*

An obvious deduction from the principle just laid down is that anything which hinders trade between our town and other towns, or our state and other states, or our country and other countries, diminishes our productive efficiency in that it narrows the market of which we form a part and so diminishes the extent to which we can carry specialization. Hence we have the following

Corollary. *High productive efficiency depends on a large amount of freedom of trade.*

It has not been possible to get thus far in our discussion of economic principles without bringing out by implication one of the principal reasons why economists as a class are free traders:

—they favor the utmost possible freedom from restrictions, because this means the largest possible amount of cooperation,—it enables every one to benefit most completely by the productive activity of every one else. But, while economists generally favor the utmost possible freedom of trade, we are all well aware that such freedom is decidedly the exception rather than the rule. Further, all economists would admit that this freedom is more important in some cases than in others; just because trade is more important in some directions than in others. It would be foolish to put an import duty on hay; but then it would do comparatively little harm for some years, since we do not naturally buy much hay outside our own country. Doubtless the economist would say that the trade—exchange-cooperation—which goes on of its own accord is the truly advantageous one; so that we need not worry ourselves about the questions why and when is such trade advantageous, but would better simply leave the matter alone. But, whatever economists think, governments continue to try to guide our trade into more or less artificial channels. In doing this, they profess to act on the basis of principles. We have no intention of undertaking here a study of these principles. But one or two of them belong to our present topic in that they concern directly the question—**When is exchange-cooperation, trade, between different countries profitable?** To which question, therefore, we must now give a little attention.

One general condition under which exchange-cooperation would surely be profitable would be realized if two communities, C_1 and C_2, produced just two things, P_1 and P_2, and C_1 could produce P_1 much more cheaply than could C_2, while C_2 could produce P_2 much more cheaply than could C_1. Evidently both would gain if C_1 should produce enough P_1 for both, and C_2 enough P_2 for both. On the basis of this case, we might say that exchange will usually pay, if each of the exchanging countries can produce some particular thing much more cheaply than the other; and very likely the most important cases of profitable trade would be covered by saying that, when a country is absolutely superior to its neighbors in producing the goods it exports and is absolutely inferior in producing the goods it imports, such export and import is profitable.

But, while the most important cases of exchange-cooperation between countries would probably be covered by such a principle, fuller analysis long ago showed that this state-

ment does not cover all cases, is in fact misleading. If we stopped at this, the reader might very naturally conclude that trade would pay *only* when the condition just explained was present. He might even conclude that we ought never to buy a thing from other countries if we could produce that thing as cheaply as those other countries. This notion, though quite wrong, is quite common. Thus, not long ago I had a conversation with a near neighbor which drifted into a discussion of Protection and Free Trade. The point which my neighbor was particularly disposed to insist upon was brought out in language something like this: "Of course I am glad to see the United States buy coffee of Brazil, for we can not produce coffee at all. For that matter, I am willing to see our people buying silks, wines, and many other things I could mention, because other countries can produce those things better than we can. But the case of steel is a very different thing. I do not admit that there is any country under the sun that can produce steel any better than America can, so I am down on any tariff that lets in steel of foreign manufacture." Now, the unsoundness of the doctrine as applied to the case of an *individual* is at once evident. Here, for example, is a lawyer who very likely can mow his lawn, cultivate his garden, and take care of his furnace much better than the person or persons whom he hires to do these things. But what he does is to devote himself to the practice of his profession, and buy the services named from other people; and of course acts wisely in doing so. Put in simple language, it is plain that he gains most by devoting himself to the doing of *the thing for which he is best fitted,* at which he can make the most money. He is not interested in the fitness or unfitness of his neighbor as compared with himself, but rather in the superiority of his own fitness in one line as compared with his fitness in another line. So long as he can find a market for his possible output, he would better devote his time entirely to doing the thing for which he is preeminently fitted, and get his supplies of other things from his neighbors, even though he can make those other things better than his neighbors.

Now, it seems pretty evident that the case of a community or nation is in this respect no different from that of an individual. The Upper Peninsula of Michigan produces little but copper and iron, getting most other goods through exchange with other

communities. Yet it would be easy to prove that Upper Michigan is really better fitted to produce some of these things which she buys from the rest of us than we are, and that her people are quite aware of this. It is therefore necessary to find some other explanation of her action than the one commonly put forth by the public. This explanation is to be found in what has been long known as the Law of Comparative Cost.

Principle. The Law of Comparative Cost.

Ignoring cost of transportation, two communities (persons) find it profitable to specialize respectively in the production of two commodities and to exchange those commodities each for the other, provided the comparative real costs of the two commodities in one community are different from their comparative real costs in the other community.

Illustration: Letting labor represent all real costs, suppose that in England the cost of a ton of iron is 25 days' labor and the cost of a yard of broadcloth is 5 days' labor; while in America the cost of the iron is 16 days' labor and that of the broadcloth 4 days' labor.

Eng. cost Iron : Eng. cost Cloth :: 25 : 5

Am. cost Iron : Am. cost Cloth :: 16 : 4

The comparative costs are not equal; therefore, by the principle, specialization and exchange will pay.

Argument: Since in England a ton of iron costs five times as much as a yard of cloth, it will naturally tend to be worth the same as *five* yards of cloth; under which conditions England can afford to give iron for cloth if, and only if, she can get *more than five* yards per ton; or trade cloth for iron if, and only if, she can get it with *less than five* yards per ton. In America, on the other hand, a ton of iron tends to be worth *four* yards of cloth; under which conditions America can afford to trade iron for cloth if, and only if, she can get *more than four* yards per ton; or to trade cloth for iron if, and only if, she can get it with *less than four* yards. But the first hypothesis for England and the second for America are plainly shut out. England can not get more than five yards of cloth for iron, since in America it is worth only four yards. So America can not buy iron with less than four yards of cloth since it is worth five yards in England. On the other hand, the second hypothesis for England and the first for America fit each other perfectly. England can get iron

for *less than five* yards, since it is worth *only four* in America; and America can sell iron for *more than four* yards of cloth, since it is worth *five* in England. Accordingly, under the conditions supposed, an exchange of English cloth for American iron would be profitable.

Note: The above statement of the Principle of Comparative Cost puts it in terms of the reciprocal trade of two countries. But in fact most international trade is not of this two-fold character. It is triangular or multiangular. Nation A sells to B; B sells to C; and C sells to A. At bottom, however, the cases are substantially alike. The condition which make specialization and exchange profitable is a difference between the comparative costs to one country of the things exchanged and their comparative costs to other countries. However, the complete demonstration of this proposition would occupy a good deal more time than we can spare and so must wait a more favorable season.

Corollary 1. *If one nation is absolutely inferior to its neighbors in respect to the production of one commodity and absolutely superior in respect to the production of another, then, obviously, the comparative costs of these commodities in this country are different from their comparative costs outside, and so exchanging them will pay.*

This corollary brings out the fact that the Law of Comparative Cost includes the general point first made that trade between two countries will pay provided each is superior to the other in respect to some commodity.

Corollary 2. *If a nation is absolutely superior to its neighbors in the production of each of two commodities, but its superiority is greater in respect to one than in respect to the other, it will profit by producing the former and importing the latter.*

Corollary 3. *If a nation is absolutely inferior to its neighbors in the production of each of two commodities, but its inferiority is less in respect to one than in respect to the other, then it will profit by producing the former and importing the latter.*

ILLUSTRATIVE PROBLEMS.

1. In most economic text books, one meets the phrase "geographical division of labor."
   (a) What do you suppose it means?
   (b) Give some illustrations of it.

2. Give some examples of recently developed labor specialization,—if possible from your own observation.

3. Same as Problem 2 for capital.

4. Why is it that a country store keeps a little of everything, while a city store very often deals in only one kind of commodity, *e.g.*, shoes or china or sporting goods.

5. Country A can produce pig iron at a cost of 10 days' labor per ton and broadcloth at a cost of 5 days' labor per yard. Country B can produce the iron at a cost of 14 days' labor and the cloth at a cost of 6 days' labor.

(a) What, in this example, are the comparative costs which our principle tells us must be unequal to make exchange pay?

(b) Prove in detail that, if transportation and all costs other than labor be ignored, exchange of these two products will pay.

(c) Which commodity will country A export?

6. Make a hypothetical case yourself and prove with it that exchange will not pay if comparative costs are equal.

7. It is sometimes said that nowadays almost everything is produced for a world market.

(a) What is one of the greatest gains of having such a market?

(b) What are some of the most important industrial changes which have made it possible?

(c) Suggest one or two of the most serious evils which would naturally result from it.

8. "We may often by trading with foreigners, obtain their commodities at a smaller expense of labor and capital than they cost the foreigners themselves."—Sumner.

(a) Show with illustration that this is true.

(b) Show how such a trade could be profitable to the foreigner.

(c) What do you suppose is the ultimate cause which explains the fact that such trade can be profitable?

9. "We know that England can make ships more cheaply than we can, and so we should let her do the ship building and turn our capital to such things as we can do better than she can." Assuming the conclusion—that we should turn our capital to other things—to be correct, the reason given for it is not entirely satisfactory. Explain.

Section C. **Large Scale Production**

It is a fact familiar to us all that the extraordinary industrial progress of the last one hundred years, and particularly of the last twenty-five years, has been accompanied by a great expansion in the scale on which industry is conducted. Further, it is generally recognized that in no small measure these have been

related as effect and cause. The progress has largely resulted from the enlarged scale of industrial operations. The big store, the big factory, the big railroad is able to supply its particular product at much smaller cost and often of much better quality. Formally stated this gives us the following

Principle. *In general the efficiency of industrial units varies directly as their size.*

Among the principal reasons for this superiority of large scale production are the following:

(a) Large scale production permits a great extension of the policy of *specialization* in that it makes the number of necessary operations of any particular sort sufficiently large to keep a machine or man busy on that sort alone.

(b) Large scale production secures *economy* in the use of different factors, instruments. (1) At certain points specialization must be carried almost as far in the small concern as in the large one; and the large one permits a *fuller utilization of the specialized factor.* (2) In the stock of raw materials, tools, and finished products there must always be some reserves to meet contingencies. The reserves of a particular concern do not need to be five times as large as those of another concern though the business of the former is five times as large.

(c) Large scale production makes it possible to utilize *waste products.*

(d) Large scale production insures *better bargains* when the concern comes on the market as a buyer or seller.

Caution: There seems to be a more or less definite limit to the size of the unit which can be effectively worked. This limit varies in different industries, at different times, and in different countries. It is soonest reached in respect to the physical unit, the plant. It comes much later in respect to the organization unit, the unit viewed as under one control in respect to management, accounts, buying and selling, etc. There is probably a limit, however, at this point. A concern may become so large that the securing of honest and efficient management is well-nigh impossible.

Illustrative Problems.

1. Some of the big farms of East Prussia have their own little railways, locomotives, cars, etc. What advantage of large scale production does that illustrate?

2. Suppose that the five banks of Ann Arbor were to be

united into one and that, while each of the uniting banks employs a cashier, a teller, a book-keeper, and a messenger, the consolidated bank were to employ a cashier, a paying-teller, a receiving teller, a discount-clerk, a collection-clerk, a head book-keeper, an assistant book-keeper, and a messenger. Show that the facts as stated illustrate *two* gains of large scale industry.

3. "If the four or five dry-goods stores on Main street were united, a great saving in the fund of circulating capital required in that business would be effected." (Circulating capital means capital out of which we get but one use, like food, or fuel, or goods which the merchant buys to sell again. In contrast, fixed capital gives off many uses, and, of course, remains in our hands some time; *e.g.*, the showcases of the merchant. The things *in* the showcases are circulating capital.)

(a) Argue for the truth of the quotation.

(b) Show that the new plan would probably effect a saving in *fixed* capital also.

Section D. **Industrial Freedom**

When the French Revolution broke out in the last years of the eighteenth century, it found most of the Western nations dominated by governments which exercised a very complete despotism, not only in respect to matters commonly regarded as well within the proper scope of political action, but also in respect to economic matters. Industry was regulated in the minutest way,—the amount each establishment could produce, the kind of stuff it should use, the methods of manufacture, (the number of threads to the square yard in cloth), these and many other matters were rigidly fixed by law and the regulations were enforced with great severity. It is probably true that in its beginning this excessive interference with the spontaneous course of industry was more or less justified; but there early developed among business men and thoughtful students the notion that, as carried out, this policy was not only annoying and more or less inconsistent with our notions of right, but also a real hindrance to the attainment of the result sought. Nations were actually made less efficient and so poorer by the very means intended to make them efficient and rich. For various reasons this notion came to be widely accepted and incorporated into government policy near the end of the eighteenth century or in the early years of the nineteenth. And, whether as a result of this change, or from other reasons, or from a combination of both, industry advanced at a quite unparalleled pace. In con-

sequence, economists have come quite generally to hold the opinion that, whatever objections there may be to it on other grounds, industrial freedom anyhow contributes to efficiency. Hence the following

Principle. *In general, industrial efficiency is greater under a regime of freedom, non-interference, laissez faire, than under one of much governmental regulation.*

Arguments: (a) Considerable freedom of *trade,* anyhow, is necessary if we are to have that *thorough-going specialization* which, as we have seen, contributes greatly to industrial efficiency.

(b) Generally speaking, under freedom, the *direction* of industrial forces will be such as to secure the highest efficiency. (1) As a rule, individuals will be better able than any one else to decide what they are best fitted to do. (2) Individuals will have the strongest motives for seeing that they are doing those things; since, however much advantage such a course brings to society at large, it brings still more to the individuals themselves.

(c) The stimulus of competition, *emulation,* is greatest under a regime of freedom.

(d) The *moral qualities* requisite to efficiency,—self-reliance, decision of character, energy, industry, etc., are most highly developed under freedom.

Caution. (1) Advocates of non-interference have always recognized that more or less govermental interference will always be necessary to secure the very industrial liberty they wish to see prevail; *since this liberty is liable to be restricted by private action, e.g.,* by the action of monopolistic combinations. In our day it has been found necessary to extend governmental action very far on this ground,—*i.e.,* to extend that action in order to hinder private persons from encroaching on industrial freedom.

(2) With the growth of popular control over govermental action, it has been found expedient to increase the activity of governments in directions which contribute indirectly to industrial efficiency, *e.g.,* perfecting means of communication, supplying weather information, investigating industrial methods, particularly in the fields where there seems to be a lack of private initiative (agriculture), and so on.

(3) Experience under the *laissez faire* regime soon showed that the high industrial efficiency secured by freedom might be purchased at too high a price. Excessive labor of women and children, physical injuries from improperly guarded machinery, and so on, called for, and secured, much remedial legislation.

At the present time there are still many abuses incident to great industrial liberty, the correction of which is much more important than the high efficiency derived from that liberty. It is probable, therefore, that for some time we shall not see less, but more, governmental interference with industry. Nevertheless, it still holds good that non-interference contributes to efficiency, and statesmen should carry out the needed control with a minimum of interference.

Section E. **Integration of Industries.**

In the preceding sections, we have discussed the conditions of productive efficiency with regard to which there is much confirmatory experience and comparatively little difference of opinion. In this and the following sections we meet two alleged methods of increasing efficiency which are of recent origin and, in many minds, of doubtful value. One of these has been named the *Integration of Industries.* (See article in the Quarterly Journal of Economics, vol. 16, p. 94.) This new departure consists in *the bringing together under one control of dissimilar but interdependent* industries; *e.g.,* a steel producer's undertaking to own and run iron mines, coal mines, coke ovens, pig iron furnaces, auxiliary railways, etc. This case of steel production was one of the first great applications of the principle; and, as all know, it was, and is, eminently successful. There seems little doubt, therefore, that the practice of thus combining interdependent industries is adapted, in some cases anyhow, to increase productive efficiency. Hence we are probably safe in laying down the following

Principle. *In many cases, industrial efficiency is increased by bringing interdependent industries under one control.*

Reasons: (1) Integration makes it possible to realize more fully the gains natural to large scale production. (2) Integration secures a variety of economies due to the complemental nature of the industries integrated, particularly in that each of these industries, save the lowest, provides a market for the product of some other member of the series and so saves advertising and other selling expenses, diminishes the risk burden, etc.

Section F. **The Unification of Industries: Consolidation, Combination.**

A very characteristic development of industry during the last twenty years, particularly in the United States, is the

coalescing, combining, of hitherto independent industrial units *of the same kind* into a single all-inclusive unit. Such units are commonly known as trusts, or, in popular phraseology, combines. The practice illustrated in their organization is contrasted with that covered in the preceding section under Integration, in that the latter combines *dissimilar*, though interdependent, units, while trusts combine *similar* units. An integration puts together coal mining, iron mining, pig iron making, steel making, etc. A trust puts together the American Steel Company, the Carnegie Steel Company, the Illinois Steel Company, etc.

Now it is fairly evident that the formation of a trust must in most cases realize one of the conditions of high efficiency already considered, *i.e.*, largeness of scale, and, hence, it must so far tend to increase productive efficiency. Thus, the combination bank in Problem 2, p. 79, which takes the place of five independent banks, will obviously be five times as large as the average of the five, and its efficiency will be much greater than the average of the five. But, secondly, the combination unit will naturally have some advantages not necessarily belonging to a unit of equal size, derived from the fact that it is the result of combination,—that it has grown out of a variety of sources. Thus, different ones of the combining units may have developed specially efficient methods or machines which are more or less trade secrets,—and which will be much more fully utilized after the combination has been made than before—under an equally large unit which was a single unit from the outset, these would perhaps never have been developed.

As a third advantage of combinations, it is always possible that the formation of a trust will establish a monopoly, complete or partial, in the industry involved. That is, said industry is liable to be brought *under the control of a single will*, natural or legal, which is what we mean by saying that a **monopoly** is established. Now, there can be little doubt that the men who seek to get a monopoly in any given case desire most of all to get into a position where they can *regulate price* in such a way as to secure the largest net return without respect to cost. But, while this doubtless is one of the chief hopes of monopoly creators, there is also ground for contending that monopoly in itself tends at some points to increase efficiency. The chief argument for this is that, under monopoly, there are a number of economies not possible to free competition. (a) Market expenses are

smaller, because of diminished advertising, smaller number of salesmen, smaller time expense of selling, and so on. (b) Transportation costs are smaller because orders can be filled from the particular plant geographically nearest the consumer. (c) There is less risk of loss from failing to calculate correctly the demand in that a monopolist seeks to adjust production not to his possible share of a considerable demand—a quantity which it is extremely difficult to ascertain— but to the whole demand,— a quantity comparatively easy to approximate.

We have seen that the combining of independent units may contribute to efficiency. But, of course, this is not the whole story. The influence of combination, particularly when it amounts to a monopoly, may be quite unfavorable to efficiency (a) First, there is likely to be *less stimulus* to enterprise, invention, etc. The monopoly, when once established, tends to rest on its oars. (b) Secondly, it is very difficult to find administrative officials equal to the duties laid upon them in a vast business; and this difficulty is greatly enhanced by the tendency to put into such places persons connected by family ties with the principal owners of the business, without much regard to their fitness for the places in question. It is thus evident that combination is not always, or in every respect, favorable even to productive efficiency. Still we are probably justified in laying down the following

Principle. *Generally speaking, mere technical efficiency is usually increased by the consolidating of like industries under one control.*

Caution: It is hardly necessary to say that there are other aspects of the trust problem besides its relation to mere industrial efficiency. In so far as the existence of trusts means the existence of monopolies, it obviousy limits that freedom of competition which is depended upon to secure a right regulation of our economic activity. Further, that same element of monopoly gives the trust undue power over the whole industrial field. Finally, it makes possible oppressively high prices. All these considerations may make it desirable, even necessary, to crush out the trust altogether, though some loss in efficiency will thereby result. Anyhow, there can be no doubt that it will be necessary to subject such institutions to a large degree of governmental control for the protection of society at large.

Section G. **Efficiency in Respect to the Entrepreneur Function.**

The preceding discussion of productive efficiency has set forth the more general principles of the matter. It still seems desirable to take up separately the particular functions involved in production and ask how efficiency is best secured in respect to those functions. Here we begin with the central, principal, function,—assuming the responsibility of production.

In the first place, we need to distinguish the *different kinds* of entrepreneurs, *viz,* (a) the Individual Entrepreneur and (b) the Collective Entrepreneur. The collective class give us three subdivisions: (1) the Partnership, (2) the Joint-stock Association and (3) the Corporation. The partnership differs from the other forms of collective undertaking in that its unity is unorganized, or anyhow very slightly organized, whereas both the joint-stock company and the corporation are consciously organized, *i.e.,* provided with officials to whom are committed the different necessary functions, and in some of whom is placed the determining will, rather than in the members taken individually. While the joint-stock company and the corporation are alike in being *organizations* they differ, or at least earlier did differ, in that the corporation possesses the characteristic of *limited liability; i.e.,* the members of a corporation are responsible for its debts, not to the full amount of their property, but only to a strictly defined amount, perhaps just what they have in the business or perhaps that and as much more. In earlier times, corporations came into existence only by a special act of the legislative authority; in our day they are usually formed by administrative process under the authority of a general law.

Taking up, now, the question of efficiency with respect to the entrepreneur function, we note first that there are three chief *requisites* of such efficiency: (a) an adequate volume of capital, (b) enterprise, initiative, readiness to assume the responsibilities of production, and (c) judgment, foresight in recognizing good opportunities for undertakings. The third of these requisites, wisdom, foresight, is obviously in large measure a matter of endowment, though it is probable that education and the general dissemination of knowledge will be of use at this point. Again, the first requisite, an adequate volume of capital, will be discussed in the next section; since the supplying of that capital is not the

peculiar function of the entrepreneur, but rather of the persons whom we have called capitalists *par excellence*. Accordingly, in this connection we confine our attention to the second requisite, *readiness of people to take the initiative*,— assume the responsibility of production. This, however, requires little analysis or discussion, as the conditions of efficiency at this point are fairly obvious. We may, therefore, summarize the whole matter in the following

Principle. *High productive efficiency in respect to the entrepreneur function, in so far as it is not a matter of natural endowment merely, depends chiefly on the maintenance of conditions which (1) minimize the individual risk-burden of undertaking, (2) make possible the quick and easy entry into, and withdrawal from, enterprises, and (3) provide or permit large profits where risk is unavoidably great.*

ILLUSTRATIVE PROBLEMS.

1. Something less than a century back, the unlimited-liability partnership form of cooperative undertaking was much the most common. Latterly, limited-liability organization has become very general.

Show why one should naturally expect this change to contribute to productive efficiency, especially in the case of new enterprises. Illustrate.

2. In our day every large city has a stock exchange where the shares of great corporations are daily bought and sold.

How do such institutions contribute to productive efficiency?

3. Give two or three ways in which patent right laws contribute to productive efficiency.

4. There is much to be said in condemnation of our recklessness in permitting private individuals to exhaust our vast stores of natural wealth in gold, silver, oil, copper, etc.

What can be said on the other side?

5. Was there any excuse for the great liberality displayed in the granting of trolley car franchises in the late eighties?

6. Argue for the contention that a much more efficient protection of the public against dishonest promoters of mining and other enterprises would contribute greatly to productive efficiency.

Section H. Efficiency in Respect to the Capitalistic Function.

It has already been repeatedly emphasized that capital is a very important factor in production. When we add that up to

date there is still much controversy as to its precise nature, how it originates, how it is maintained, and so on, no excuse is probably needed for giving it a fuller treatment than will be accorded the other factors in production.

A very little reflection will make clear that efficiency on the side of capital involves chiefly three things: (1) An abundant stock, (2) availability, and (3) wise employment. The last of these depends mostly on the skill and capacity of the entrepreneur who determines what shall be produced and so determines to what uses capital shall be put. Accordingly, we are here concerned principally with the conditions on which we depend to secure an abundant stock of capital and to insure that that capital shall possess a high degree of availability. In dealing with the question: On what conditions must we depend for securing an abundant stock of capital, the first problem which meets us concerns the *origin* of capital. By what process or processes does it come into existence? To answer this question, therefore, must be our next task.

1. How Does Capital Come Into Existence?

It is too obvious to need serious argument that any piece of capital, say an engine, if viewed simply as a physical object, has to be brought into existence in just the same way as consumption products have to be, *i.e.*, through consciously directed labor assisted by land and capital. Just as certain factories are engaged in making hats, golf balls, candy, and other consumption goods, so certain other factories are engaged in making engines, machines, tools, and other capital goods. At first sight, then, it might seem as if such a factory was the place to study the question: "How Does Capital Come into Existence?" In fact, however, we are here concerned with *something deeper than mere technical production.* We are looking for the ultimate origin, the moral origin, so to speak, of capital. This is a legitimate question to ask with reference to any product; for under an exchanging economic order, the technical producer of anything, whether it be an engine or a pound of candy, is not, in the most ultimate sense, responsible for its existence. He produces that engine or candy because he knows or expects that other people will buy it from him. He is in effect, therefore, acting as the

agent of those people.* Now, in many relations this way of looking at the matter is of no interest to us; but, in our present connection, it is very important. If we wish to know the ultimate origin of capital, we must go to the principal rather than the agent. Engines and other forms of capital are things the ownership of which involves keeping large amounts of value tied up all the time while getting income—service—therefrom only in small periodic returns. Not everyone, therefore, is in a position to buy and own such goods. How does the actual buyer get himself there? In this case the actual buyer is the entrepreneur, who very likely has borrowed the money to make the purchase. Another step then is necessary. How did the man who lent the money to the borrowing entrepreneur get himself in a position to do this, *i.e.*, in a position to give up, say, $3,000 in exchange for a yearly income of $150? The answer is plain——he must have accumulated a money fund which was to him for a longer or shorter period superfluous—*i.e.*, could be spared from other possible uses. But the accumulation of such a fund obviously requires two things: (1) he must *get* the money, must from some source derive an income, and (2) he must *save* from that income, must practice abstinence. As far as the first condition is concerned, this must presumably be fulfilled in the same way that any income is obtained, *i.e.*, he himself or his property must supply some service for which men are willing to pay a price. In doing this, he is virtually producing in the technical sense the goods capital which his money capital later buys. The second condition—saving—can have no deeper analysis. It is *just saving,* going without some gratification in the present which would otherwise have been possible. The capitalist has a certain money income; he refrains from spending all of it consumptively; as a consequence he has a fund of money with which he himself, or someone to whom he lends it, can buy engines or other productive goods. As economic society is at present conducted, this is substantially the only process in which capital grows: *get an income; save from that income.* But to say that one saves from his income is to imply the existence of that income. It seems sufficient, therefore, to say

*This is evident enough in so far as production takes place *to order;* but the case is not essentially different when production is *for a general market,*—the latter type of production is possible only because experience shows that it will work substantially the same as if production were to order.

that the process whereby capital is accumulated is saving.

Principle. *Under the existing economic order capital originates chiefly in saving or abstinence.*

Comments: (1) In insisting that capital has its origin in saving, we must not forget what was said at the beginning of this discussion, that any concrete piece of capital has to be produced, *on its technical side,* just as is any other piece of wealth. Under our system of specialization the technical producing of capital is, literally speaking, performed by someone other than the capitalist; but it surely has to be done. For some purposes, it is very important to fix our eyes on the money fund which the capitalist is accumulating as the thing to be recognized as capital, the thing to be followed in tracing the genesis of capital. But at this point we must be very careful. If we forget that, along with the accumulation of money funds, there must go on the manufacturing of the goods capital corresponding thereto, we are likely to fall into serious errors. Both these processes must be carried on if capital is to exist. Abstract or money or formal capital must be accumulated, and concrete or goods capital must be technically produced. In dealing with some problems, we must give our attention to money capital, with others our eyes are fixed on goods capital. But capital building, in the fullest sense, in our day requires that both be provided.

(2). In the above discussion, saving is put forward as the true source of capital. Now, this word saving must not be understood as if it necessarily involved serious *deprivation.* Often this is not the case. For some men, spending rather than saving would bring the sacrifice. But, in any case, the relinquishing of the right to spend for immediate satisfactions is necessary.

(3). The antithesis between saving and spending which is involved in our account of capital building needs to be interpreted with some care. Spending, as thus used, does not include every case of exchanging money in hand for some commodity or service, but only the exchanging of such money for *consumption* goods, goods of which we do not expect to make any other use than the *direct* satisfying of wants. Thus, to part with money in exchange for an engine to equip a factory would not be spending it in the popular sense or the sense here employed. Instead, such a use of money would be described as *investing* it. This is a distinction familiar to the business world; but it is frequently overlooked and so becomes the source of a popular fallacy about money.

Corollary. *From the standpoint of people in general, the rich man who saves from his income is to be commended rather*

than the one who spends it on himself or his immediate dependents.

Let the student give the argument. (Why may we expect that the increased efficiency will benefit people in general?)

Meet the following objections:

(a) If the rich man saves his money instead of spending it, there will be just so much less demand for goods in general, hence just so much less opportunity for employment.

(b) If the rich man saves his money, instead of spending it, the consumption goods which were made but which he concluded not to buy will be wasted and the producer of those goods will be injured.

ILLUSTRATIVE PROBLEMS.

1. Suppose that a community of say 50,000 persons living on an island, completely isolated from all other communities, but otherwise living under an economic system like ours with division of labor, trade, metallic money, etc., should attempt to increase its capital by issuing $100,000 of paper money.

(a) Argue for the contention that, in general, we should expect this attempt to fail.

(b) Try to find some reasons for thinking that the scheme might realize a small measure of success. (Would said scheme tend to increase the total output of labor services? Would it tend to release any labor hitherto devoted to the old tasks?)

(c) Change the hypothesis by supposing the given community to be in free trade relations with many other communities, and argue that the proposed issue would really increase the capital of the community.

2. "When the primitive fisherman refrains from eating fish in order to accumulate a store to be eaten while he makes a net, we obviously have a case of real saving. But when a capitalist keeps his money rather than spending it, things are very different. The good things our capitalist refrains from consuming have not been made at all; instead, producers, knowing that capital is being accumulated, are making engines, cars, etc., which obviously could not be consumed. But, if they could not be consumed, they could not be saved, such capital, therefore, does not result from saving."

Taking as your definition of saving this: "Saving is going without something one might otherwise enjoy," show that the capitalist who accumulates a fund of money does really save.

3. Suppose that, instead of proceeding as at present, the capitalist were himself to make the concrete pieces of capital, hoes, plows, planes, engines, etc., and then lend these to producers for hire. Would such making of capital involve saving?

4. Suppose that a communistic state, in order to increase its stock of capital, should proceed to require from every citizen one more hour of labor daily. Would this way of building capital involve saving?

2. Conditions Favoring the Accumulation of Capital.

We have seen that, under present-day conditions, capital comes into existence chiefly through saving, abstinence—a deliberate relinquishment of the present disposal of income. What conditions favor the practice of this line of conduct? A fairly adequate general answer can be put into a single sentence.

Principle. *The accumulation of capital is favored by the existence of large incomes, by conditions which insure to capitalists the expected advantages of saving, and by the presence of suitable social machinery to aid in caring for, and investing, accumulations.*

ILLUSTRATIVE PROBLEMS.

1. Give reasons for expecting capital to accumulate more rapidly in England than in Scotland; in Germany than in Persia.

2. Suppose the total income of industry in the United States were divided equally among all the citizens, do you think capital would grow as rapidly as it now does? Why?

3. Explain why postal savings banks would be expected to increase the accumulation of capital; same for loan and trust companies; same for insurance companies.

4. From our present standpoint, argue for or against the Oklahoma system of guaranteeing bank deposits.

3. Conditions Favorable to Rendering Capital Available.

It hardly need be said that mere accumulation of capital is not enough; if it is to do its part, it must be made available. At this point modern business methods have been wonderfully successful. We are able to utilize not only the more considerable funds which people have definitely set apart to play the role of capital, but also a great amount of wealth which is only momentarily idle and could not be treated as capital at all, were it not for modern institutions of credit.

Under present-day conditions, capital is chiefly utilized by persons other than those who accumulate such capital, *i.e.*, the entrepreneur is a different person from the capitalist proper. Consequently, availability means making the process of lending

and borrowing easy. Here, as under the preceding head, the general conditions can be put in a sentence.

Principle. *The availability of capital depends on a high state of entrepreneur credit and high efficiency in the institutions which deal in money capital,—banks, trust companies, and so on.*

ILLUSTRATIVE PROBLEMS.

1. For some years before and after 1892, it looked to European observers as if the United States were likely to give up the gold standard and adopt silver, thus reducing the value of the dollar, as most expected, by about forty per cent. What effect would you expect this condition to have on foreign capital in the United States?

2. The existence of the ordinary commercial bank enables us to make available quantities of money capital out of funds which are not really set aside for use as capital, but rather are being kept for daily use. Try to explain how that can be. (Suppose that 500 persons kept the funds which they expect to put to everyday use in a bank, and made payments partly by cash drawn out, partly by checks drawn in favor of one another. Show that the bank could safely treat a considerable part of the funds as if they were going to be permanently idle.)

3. In Germany there are many agricultural loan associations which issue jointly-guaranteed bonds to the lending public, then lend to their members on ordinary mortgage security. Does it seem likely that this system would tend to make capital more available to farmers?

Section I. **The Efficiency of Labor.**

(See Reading VIII.)

It is a matter of common knowledge that there are great differences between different countries in respect to the efficiency of labor. The causes of these differences are in part natural and so in the main irremovable. Inherited traits, physical, mental, moral, must keep the East Indian inferior to the English or American laborer for many generations anyhow. But there are other particulars wherein the conditions of labor efficiency are more or less controllable through legislation or individual action. In part, we can trust the natural working of self interest in employers and laborers to secure these conditions, especially as the diffusion of knowledge makes evident the reality of these conditions. But, in not a few par-

ticulars, it has proved necessary to interfere through the strong hand of the state to protect the general social interest in highly efficient labor, from suffering at the hands of greedy, short-sighted employers and laborers.

The most important conditions of high labor efficiency are suggested in the following statement. *To secure high labor efficiency, we need (a) material conditions fitted to insure vigor of body and mind, (b) political and social conditions which contribute to the development of self-respect, ambition, and so on, and (c) some system of remuneration which is fitted to encourage industry, carefulness, energy, and so on.*

Illustrative Problems.

1. It is often said that the Irishman is a lazy and incapable laborer at home, but fairly, even highly, efficient in America or Australia. Can you suggest some explanation of this?

2. Look up the profit-sharing system (there are various books on the subject—Gilman's among the best), and argue that it is likely to increase the efficiency of labor.

3. Compare with respect to probable efficiency, giving reasons therefor: the slave system, the time-wage system, and the piece-wage system.

4. Argue for and against, the tendency of general education to increase the efficiency of manual laborers.

5. Give some reasons why we cannot safely leave the proper regulation of child labor to free contract. (See Reading VIII; also Mill, Book V, Chapter XI.)

CHAPTER IV.

COMBINING PROPORTIONS AND PRODUCT.

It is a fact too evident to need argument that substantially all productive processes are *joint processes,*—processes wherein two or more factors coöperate in accomplishing the result. Land by itself can produce no considerable quantity of potatoes; labor by itself can produce none; a furnace can not give out heat without coal; feeding the coal to the furnace needs labor; and so on.

Again, it is too evident to need argument that the productivity of any joint or cooperative process varies more or less with changes in the combining proportion. Thus, increasing the quantity of labor used in cultivating a certain piece of land might make the total product greater or might leave it just the same or might even make it smaller. Further, in case it made the product greater, the increase might be in exact proportion to the increase in labor or it might be in a larger or smaller proportion. Similar statements could be made of other combinations of factors, say a locomotive and the coal used in firing it. If we had just started the fire, a certain increase in the coal fed might increase the water evaporated much more rapidly than the increase in fuel consumption. At a later stage, there might be an increase in water evaporation, but one which was less than proportional to the increase in fuel consumption. Still later the increase in fuel consumption might bring no increase in evaporation; and, finally, might even diminish it.

Now, in the main, this question of combining proportions is a matter of industrial technique rather than of economic science. But several problems which it suggests are of the utmost importance in strictly economic connections. Thus, the ultimate basis of a community's economic capacity, its store of natural resources,—the land it controls,—is definitely limited in amount, while population and capital can, and do, increase; in thus increasing, they alter the proportion in which the several factors of production are combined; and the effect of this in changing the rate of output is obviously a matter of great moment. Will the additions to capital and labor increase product at all? If so,

will the increase be just proportional or more than proportional or less than proportional? These are all questions which obviously have a marked bearing on human welfare. It is, therefore, very important that we get a clear knowledge of the more fundamental principles with respect to the effect upon product of changes in combining proportions.

Section A. Principles Governing the Combining of Individual Factors.

The more important problems of combining ratios arise when we bring together total stocks of the several factors, *e. g.*, the whole land outfit of England over against its outfit of capital or labor or both. But we must find our fundamental facts in the relations between *particular pieces* of land, of capital, and of labor. We must first know how individual units of land and labor, or of capital and labor, or of land and capital, behave when combined in different proportions. To make the problem as simple as possible, let us begin with a series of hypothetical combinations made up of two elements each of which is divisible and substantially homogeneous,* and assume that certain consequences will follow a changing of the combining proportions. Having obtained from these hypothetical experiments definite notions of the principles and relations involved, we will then show that actual experience confirms our assumptions.

I. Hypothetical Combinations with Hypothetical Results. Two Factors, Divisible and Homogeneous.

1. Factor A Constant. Factor B Changing.

a. Three Stages: Returns Increasing More than Proportionately; Returns Increasing Less than Proportionately; Returns Diminishing.

Let us begin by representing the two factors which we are to experiment with by the letters A and B. Let us suppose ourselves to start with a large amount of A and a very small one of B, and to increase the amount of B in successive experiments while A remains constant. Further, let us assume that the results of our experiments are as follows: (1) During the first few experiments, output increases and that more

*Such a case might be roughly realized in the relations of a piece of farm land substantially uniform in respect to quality, position, *etc.*, and a quantity of labor devoted to cultivating said land.

rapidly than does the changing factor, B; (2) during a number of experiments next following, output continues to increase but less rapidly than does B; (3) during the remaining experiments, output actually diminishes. In order to give definiteness and clearness to our ideas, these imaginary experiments and results are presented in numerical form in Table I. The figures given are of course purely imaginary, as are the combining elements, A and B. No known combination could be represented in just this way. But a careful study of some such table is after all well-nigh essential to a clear understanding of the real cases.

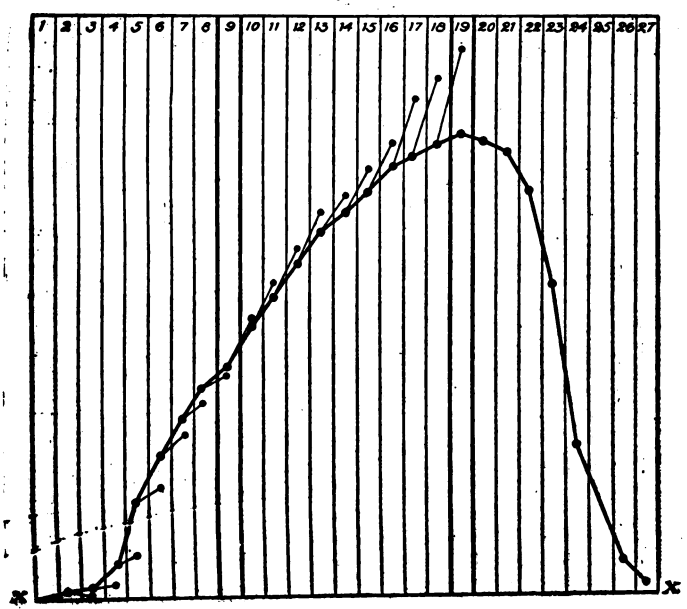
TABLE I.

I	II	III	IV	V	VI	VII	VIII	IX
No. of Comb.	*Amount As*	*Amount Bs*	*Output*	*Propor. Increase*	*Actual Increase*	*Average in As*	*Average in Bs*	*Marginal Product of Bs*
1	20	2	2	....	..	.1	1	1
2	20	3	6	1	4	.3	2	4
3	20	4	16	2	10	.8	4	10
4	20	5	35	4	19	1.7	7	19
5	20	6	84	7	49	4.2	14	49
6	20	7	126	14	42	6.3	18	42
7	20	8	156	18	30	7.8	19.5	30
8	20	9	179	19.5	23	8.9	19.8	23
9	20	10	200	19.8	21	10	20	21
10	20	12	236	40	36	11.8	19.7	18
11	20	14	266	39	30	13.3	19	15
12	20	16	290	38	24	14.5	18.1	12
13	20	18	312	36	22	15.6.	17.3	11
14	20	20	330	34	18	16.5	16.5	9
15	20	22.2	346	36	16	17.3	15.6	7.2
16	20	25	362	43	16	18.1	14.5	5.7
17	20	28.5	380	50	18	19	13.3	5
18	20	33.3	393	63	13	19.6	11.8	2.6
19	20	40	400	78	7	20	10	1
20	20	44.4	398	44	— 2	19.9	8.9	— 5.5
21	20	50	393	50	— 5	19.6	7.8	— 1
22	20	57.1	360	56	— 33	18	6.3	— 4
23	20	66.6	280	60	— 80	14	4.2	— 8
24	20	80	140	56	—140	7	1.7	— 5
25	20	100	80	35	— 60	4	.8	— 3
26	20	133.3	40	26	— 40	2	.3	— 1
27	20	200	20	20	— 20	1	.1	— 3.3

In this table the first column shows the number of the combination; the second, the amount of As in the combination; the third, the amount of Bs; the fourth gives the output or product for each combination; the fifth shows what the increase in output would be *if it were proportional* to the increase in Bs; while the sixth *shows* the *actual* increase.* Comparing columns V and VI, we see that increases in output are more than proportional up to Combination 9; less than proportional from 9 to 19; and turn into decreases from 19 on. That is, looked at from one point of view anyhow, the different combinations naturally break into three stages or groups, which stages may be characterized as follows: (1) output increasing more than proportionately or at increasing rate, (2) output increasing less than proportionately or at diminishing rate, (3) output diminishing.

The results of this analysis of our table can be presented graphically as in Diagram I. The vertical spaces counting from

Diagram I.



*The remaining columns will be explained later.

left to right represent the successive combinations. The diagram shows a series of dots connected by a continuous line and another series each of which is connected to some member of the first series by a short spur. The vertical distance of any dot in the continuous line above the preceding dot in that line shows the actual increase in product. The vertical distance of the dot attached by the spur to the same preceding dot from said preceding dot shows what would have been a proportionate increase in product. It will be noticed that up to combination 9, all the *proportional* increase dots are *below* the *actual* increase dots; while all after 9 are *above*. Beyond 19 the increases are turned into decreases.

Notes: (1) As will presently appear, the combinations which range from 9 to 19 are, for divisible factors, the only practicable ones. This stage, therefore, is in such cases the one to which we have most frequent occasion to refer. Unfortunately, conventional usage designates it as the stage of **diminishing returns**, and we can scarcely hope to reform this usage. It is, however, of great importance that we realize that this is not a stage of *diminishing* returns, but rather one of **returns increasing, but not proportionately.** During this stage, we can get more out of our stock of As by increasing the proportion of Bs; but not as much as the amount of Bs added might lead us to expect.

(2) In conventional phraseology, Combination 9 is called the point of diminishing returns. A man working As in Combination 12 would be described as working them beyond the point of diminishing returns.

ILLUSTRATIVE PROBLEMS.

1. If you had 10 As and 8 Bs, what combination would you naturally use? What one, if you had 40 As and 32 Bs? If you had 5 As and 4 Bs? 60 As and 75 Bs? 10 As and 9 Bs? 5 As and 3 Bs? 10 As and 7 Bs?

2. If you had at your disposal 60 As and 48 Bs, how much product would you naturally be getting? If you were to put in 6 more Bs, how much more product would you naturally get? How much more, if you added another 6 Bs?

3. If you wished to get the utmost possible out of your Bs, which combination would you choose? Which would it be, if you wished to get the utmost possible out of your As?

4. (a) Does the designation, "the stage of increasing returns," suggest to your mind that the first of our stages is the most desirable one to be working a piece of land in?

(b) Is it?

5. "It can never be profitable to carry the utilization of any factor, say A in our table, beyond the point of diminishing returns." Refute this statement.

6. I am sometimes disposed to call the stage from Combination 9 to 19 *the stage of diminishing efficiency.* Argue for the reasonableness of this designation.

7. We often speak of cultivating the land more and more *intensively.* Suppose A in our table to be land, and point out what combinations would involve intensive cultivation.

8. What would you naturally understand the expression, "lower the margin of cultivation," to mean?

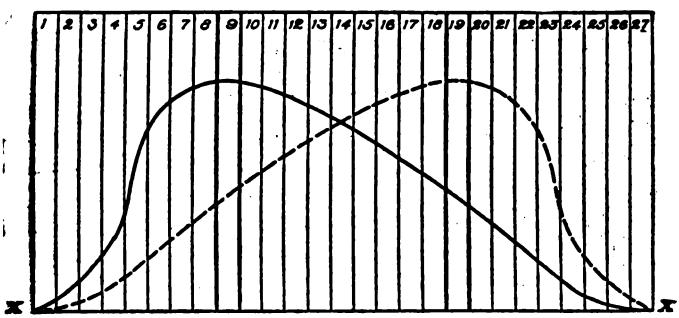
b. Alternative Methods of Conceiving the Facts Presented.

(1) Changes Caused in Averages.

In the foregoing presentation of the facts brought out in our table, we have compared the *actual* increase in output as factor B has increased with an increase which would have been *proportional* to the increase in B. Another quite important method of presenting these same facts sets forth the changes which follow the successive increases in B *in respect to the average output measured in either A or B.* The figures for these averages are found in Columns VII and VIII of our table. Since, from Combination 1 to Combination 9, the total output is increasing, the average per unit of As is, of course, rising during that stage. Further, since the increase is more than proportional to the increase in Bs, the average measured in Bs will also rise. That is, the first stage is one in which averages increase *measured in either factor.* From Combination 9 to 19, the total still increases and so the average measured in A increases; but, as the increase is less than proportional to the increase of B, the average measured in B is diminishing. That is, the second stage is one in which the average, measured in the constant factor, increases, but, measured in the increasing factor, diminishes. From Combination 19 on, since the total falls off, the average diminishes measured in either factor. It follows that, from this standpoint of averages, the series breaks into three stages as before: (1) both averages increasing, (2) averages increasing-diminishing, and (3) both averages diminishing. From this point of view, it is also important to note that the combinations which form boundaries between the first and second and between the second and third stages, viz., 9 and 19, are maxima combinations, *i. e.,* in 9 the total return, measured in B, is the largest possible, while in 19 that return, measured in A, is the largest possible. This supplies a possible nomenclature for the several stages: (1) ante-maxima, (2) inter-maxima, and (3) post-maxima.

These facts with respect to averages can be effectively presented by graphic methods. In the accompanying diagram, the figures at the top show the number of the combination, the rectangles included between the base line X-X and the *continuous* curve represent the output for the several combinations averaged for a unit of B, while the rectangles included between the base and the *dotted* curve represent the output averaged for a unit of A. The heavy verticals at 9 and 19 indicate the maxima for B and A respectively. The course of the curves shows graphically how the output measured in either factor increases up to combination 9; how it then declines when measured in B, but still increases as measured in A up to 19; and how, finally, it declines, as measured in either factor, from 20 to the end.

Diagram II.



Note: The preceding analysis suggests that we may properly designate Combination 9 as the one of *maximum efficiency*—from the standpoint of the constant factor—or as the one of *maximum returns*—from the standpoint of the changing factor. So, Combination 19 is the one of maximum returns for the constant factor or of maximum efficiency for the changing factor.

The facts with respect to averages are very useful, in fact almost necessary, in determining the comparative advantages of different combinations. Thus, supposing you have at your disposal 20 As and 7 Bs,—the figures given in Combination 6,—would it be better to use that combination or some other? Answer: It would be better to discard 6 As, thus making a combination of 14 As and 7 Bs, i. e., Combination 9. For, under Combination 6, the average product, measured in Bs, is only 18 and, so, the total is only 7 times 18 or 126; while, under Com-

bination 9, the average is 20 and, so, the total is 7 times 20, or 140.

ILLUSTRATIVE PROBLEMS.

1. If you had at your disposal 60 As and 24 Bs, which combination could you most profitably use? Which combination, if you had 24 As and 60 Bs?

2. If As and Bs are divisible or separable factors, production will normally be confined to Combination 9 or 19 or some one lying between these. Prove.

3. "If your stocks of As and Bs have the same ratio as Combination 9 or 19 or any one lying between these, you will find it most profitable to use just the combination you have; that is, under the conditions named, it will never pay you to discard any of your stock either of As or Bs." Prove this arithmetically for a stock of 10 As and 7 Bs; 10 As and 10 Bs; 20 As and 25 Bs.

4. Suppose that you have been using 40 As and 32 Bs in Combination 12 and that you now take to putting in 4 more Bs. How many units of product will each of these four add? How many did each of the last 4 of your original 32 add?

(2) Changes Caused in Marginal Product of Changing Factor.

In addition to the preceding methods of bringing out the facts of our table, there is still another which must not be overlooked. In column IX, which has thus far been disregarded, we have a series of figures which indicate what is commonly known as the *marginal product* of the changing factor, B. Thus in the second combination there is one more unit of B than in the first, while there are four more units of product. The ninth column, therefore, has for this combination a 4,—the amount which the last or marginal unit of B adds. So, in the third combination, we have one more B, while product is ten units greater; the last column, therefore, shows for this combination a 10,—the amount added by the last B. Now, if we compare the figures of this column with those of Column VIII, which contains the average product for each B,—As being ignored—we see that, up to, and including, Combination 9, the product of the last or marginal B is larger than the average product for Bs; that, from 9 to 19, the marginal product for Bs is smaller than the average; and that, from 19 on, it is less than zero. Further, and this is perhaps most important of all, from 10 to 19, each marginal product of Bs is not only less than the average, it is also *less than the preceding marginal product*,—in other words, the marginal

product is continually declining.* Now, this aspect of the data supposed to be derived from our experiments is believed to be of great importance because of its relation to the incomes received by laborers and other contributors to production. For, according to the most widely accepted opinion, each contributor tends to get the amount which represents the addition to product made by the marginal member of his class. So that, if the Bs in our table represent laborers and production were carried forward to Combination 13, then wages would tend to be the value of the 11 units of product added by each of the last two laborers.

The preceding paragraph gives us a new way of describing Combination 19. Instead of calling it the point of maximum returns for A, we may call it the point of minimum marginal productivity for B. That is, our combination contains all the Bs it will stand. Any addition to the proportion of that factor will reduce rather than increase product. Its marginal productivity in the next combination is less than nothing.

Illustrative Problems.

1. It is believed by a large number of economists that, after the stage of diminishing returns has been reached, the wages of laborers of any particular class will tend to be the amount of product which the marginal laborer of their class adds to the total, or, briefly, will tend to be their marginal product. Accepting this doctrine as true, and supposing that our A represented land and our B's laborers, and we were dealing with a small isolated island containing 20 units of land and 12 laborers, how many units of product would each laborer tend to get? How many, if there were 13 laborers? 15? 17?

2. "When the stock of capital was so small that only the most necessary instruments of production, *e.g.*, nets, plows, oxen, could be had, the marginal productivity of capital was very high. But, as savings increased so that almost every improvement men had thought of could be introduced, the marginal productivity of capital rapidly fell. However, discovery and invention came along and again sent up marginal productivity; though here, again, the higher efficiency of industry, by increasing income, led to increased saving and, so, again reversed the movement."

(a) Explain what is meant by the marginal productivity of capital.

(b) Argue for the truth of the first two sentences.

(c) Argue in favor of both clauses of the third sentence.

(d) Argue for the proposition that it is natural to suppose

* It began to decline as early as Combination 6. But it was still above the average down to Combination 10; and its falling off is of importance only after it has become smaller than the average.

that the rate of interest moved down or up as the marginal productivity of capital moved down or up.

3. Suppose that producers are using Combination 12; that the price of the product is $50 per hundred; and that the stock of As can not be increased.

(a) Assuming that the price of the changing factor tends to be equal to the money value of its marginal product, what would naturally be the price of Bs under the above hypothesis? Answer: $6. Prove.

(b) Assuming that the money value of the total amount of As used in the combination tends to equal the value of the total product minus what has to be paid for the Bs, what would naturally be the price of As under our hypothesis?

(c) Suppose that the supply of Bs pressing for sale at whatever price they will bring should be so increased that production was carried far down into Combination 14. With the price of the product at $55.55 per hundred, what would be the natural price of Bs?

(d) What would be the natural price of As, under the last hypothesis?

c. Changing Combinations and Costs.

Growing out of the data which have been presented with respect to the influence on product of changes in combining proportions, are certain important facts with respect to the relation between costs and combining proportions, as also between costs and the volume of output. If, in producing the commodity which is supposed to result from the union of As and Bs, we could get our As without cost but were obliged to pay for Bs, then the relations between combining proportions and costs would be grouped in stages substantially the same as those which we have already met. So long as output was increasing more than proportionately, cost would be declining. When output increased less than proportionately or ceased to increase at all, costs would increase. In other words, from Combination 1 to Combination 9 we should have a stage of *diminishing cost*, and from 10 on a stage of *increasing cost*. But, in the real world, it usually proves true that As have a cost as well as Bs. In consequence, the combination showing least cost inevitably comes later than 9. For, since the output, as measured in As, continues to increase up to Combination 19, total cost as influenced by As continues to diminish up to that point. In other words, between Combinations 9 and 19, costs are tending to increase under the influence of B and to diminish under the influence of A. In consequence, the stage of minimum cost is bound to lie somewhere between 9 and

19, depending on the relative magnitude of the cost of As and Bs. Thus, if As cost $1 each while Bs cost $2 each, the lowest total cost will be reached in Combination 13. If As cost $2 each and Bs $1, the lowest total cost will be found under Combination 16. Accordingly, we have the general principle that, if one of the factors in a combination be increased steadily while the other remains constant, there will be a series of combinations under which cost steadily declines followed by one in which cost steadily increases. It results, of course, that the aim of every responsible producer will be to find and use that particular combination which shows the lowest total cost.

ILLUSTRATIVE PROBLEMS.

1. (a) If you had to pay $2 each for As and $5 for Bs, which combination would you find it most profitable to use? (Look for the combination which will give you the smallest cost per unit.)

(b) Reverse the prices and answer the question.

2. Suppose that you already had on hand 20 As and wished to utilize them as profitably as possible.

(a) With Bs costing you $7.50 each and product selling at $50 per hundred, which combination would you find most profitable? Answer: Combination 11. Prove. (You would add Bs until the value of the increase in product became too small to pay for the added Bs.)

(b) Which combination, if Bs were costing you $6 each and product were selling at $66.66⅔ per hundred?

2. Factor B Constant, Factor A Changing.

In the preceding series of experiments, A was supposed to remain constant while B increased. If, now, we were to reverse the hypothesis, keeping B constant and increasing A, what results would we have? Precisely similar ones to those already brought out, with the places of A and B reversed. That is, for a time output would increase more than proportionately to the increase in A, then would increase less than proportionately, and finally would diminish. And this is not a new principle based upon a new induction. On the contrary, a table reversing the relations of A and B both as to conditions and results *is directly* deducible from the table already given.* From this fact it follows that, if the principles already hypothetically brought out prove to be true in fact for a combination in which one factor, say

* In an appendix is to be found such a table together with the processes by which it is derived from Table I.

capital, is constant, while the other, say labor, is increasing, then similar principles must be true of combinations in which the second factor, labor, is constant and the first factor, capital, is increasing.

II. Actual Combinations.

1. Both Factors Divisible.

a. Statement of Facts.

In the preceding discussion we have been concerned with imaginary results of imaginary changes in the combining proportions of imaginary factors. We must now ask whether these results correspond in a general way with those which we should meet in actual life. The answer is, of course, affirmative. If, for example, one were to take a ten-acre field devoted to raising potatoes and in successive seasons spend in cultivating it, say, 1 day's labor, then 5 days', then 10, then 40, then 80, and so on, he would doubtless meet results analogous to those presented in our tables. That is, during a few experiments, the product would increase and that more rapidly than the labor; then, for a considerable number, the product would increase, but less rapidly; finally, product would diminish. Do these statements need demonstration? As to the existence of the third stage, there surely could be no doubt: it certainly is possible to put too much work on a given crop, to cultivate it too many times. Again, there can be no doubt as to the existence of the first stage. One day's hoeing put on a ten-acre lot during the whole season would probably not produce an appreciable result. Anyhow, 5 days put on the same lot would increase the crop much more than five times as much as did the one day of hoeing. Further, there can be no doubt that ten days' hoeing would increase the crop more than twice as much as the five days did. That is, a stage short or long during which product increases more rapidly than labor, is assured. The only question remaining, then, concerns the second stage. Conceivably, the stage of more than proportionate increase might continue till that of actual falling-off came on. Is there in fact a transitional one during which product still increases but does so less than proportionally?

It seems easy to establish the affirmative by two considerations;—it being assumed that the practices of actual farmers may be trusted to furnish a clue to the more general principles

of industrial technique. First, everywhere we find under cultivation lands *inferior,* as respects productivity, *to the very best.* From this it must be concluded that the cultivation of the best lands has anyhow passed through the first stage; since, otherwise, the farmers would work those best lands harder rather than put their labor on inferior lands. Secondly, we find everywhere that, when different grades of land are already under cultivation, and, so, the best land, anyhow, has passed through the first stage, a rise in the price of products leads farmers to put more labor on those best lands, or, in ordinary language, to cultivate them more intensively;—a thing which they surely would not do if nothing were to be gained by it. It follows, then, that land-labor combinations frequently *are* in the second stage, *i. e.,* the stage of output increasable less than proportionately. Of course, then, that stage is a possible one for such combinations.

From the preceding paragraph we learn that, if we keep the land elements constant in land-labor combinations while increasing the labor element the combinations would show three stages: (1) product increasing more than proportionately to labor, (2) product increasing less than proportionately to labor, and (3) product decreasing. But, as was shown in our discussion of imaginary combinations, if the above is true of a series of experiments wherein land remains constant while labor increases, it is of necessity equally true of a series wherein labor remains constant while land increases. That is, if 1,000 days' labor per year were put, first on one acre, then on two, then on three, and so on, the combinations would show three stages: (1) product increasing more than proportionately to land, (2) product increasing less than proportionately to land, and (3) product decreasing.

In the foregoing attempt to show that the results of our imaginary combination correspond to actual experience, we have considered only land-labor combinations. But there is little need of argument to convince any one that similar principles prevail, in some degree anyhow, in the case of land-capital combinations. Thus, if our experiment had been to try the effect in successive seasons of ever-increasing quantities of *fertilizer,* we should doubtless have met with results substantially the same as those heretofore presented. For the first few seasons, product would have increased more rapidly than the fertilizer consumed; later,

product would have increased less rapidly; finally, it would have declined. Perhaps the second stage would have been briefer than in the case of the land-labor combinations; *i. e.*, the advantage of increasing the fertilizer used would have been exhausted sooner than the advantage of increasing the cultivation. But the general course of results would have been the same.

In the preceding discussion, we were considering the case of combinations between land, on the one hand, and labor or capital or both, on the other. But we hardly need say that, if we were to consider combinations wherein the place of land was taken by a producible instrument like an engine or a power plant, we should have similar phenomena. Thus, if we suppose a power plant planned to supply ordinarily 100 horse power, to be fed in successive experiments 200 pounds of coal, then 240, then 280, and so on, we should find our plant passing through the same three stages so often described. Still, again, if we were to take in place of land a pair of draft horses, and make a series of experiments to ascertain the relation of their work output to the food supplied them, increasing the amount of such food in each successive experiment, we should meet results exactly analogous to those already worked out in the other cases. In short, we may be sure that we have here a general law for the behavior of combining factors under all possible combining proportions. Since familiarity with the results of *possible* combinations is needed for a clear comprehension of the whole matter, let us summarize this discussion in a formal principle.

b. Formulation of Principles.

(1) General Law of Possibilities.

Principle. *Supposing that the attempt be made in successive production periods to increase the output (product) from any instrument of production by increasing the expenditure of assisting factors in connection with said instrument from zero upwards, then, as respects the ratio of output (product) to expenditure for assisting factors, said instrument will sooner or later be found in each of the following stages, viz.:*

(1) Output increasing more than proportionately (at increasing rate);

(2) Output increasing less than proportionately (at diminishing rate);

(3) Output decreasing.

Note: The output or product here had in mind is goods output, not money output. The problem in hand is primarily one of industrial technique, not of business finance. We are not asking whether the producer will make smaller or larger profits by choosing one combination rather than another, but whether he will get a smaller or a larger *physical product.* There is no harm in expressing the varying expenditure in money; but the output or product must be in the shape of goods.

(2) Divisible Factors Normally Used in Second Stage.

The preceding discussion has brought out the different stages in which a productive combination of two factors would one time or another be found, provided all *possible* combining proportions were tried. As already remarked, this study of *possibilities* is needed for a clear comprehension of the whole matter. It is also needed to prepare the way for some special cases to be considered later. But we hardly need say that not all of the possibilities considered have practical significance. If, for example, our combining elements were land and labor, the first and last of the three stages we have been considering could never be realized in industrial practice, save by accident or error. Thus, the last would be shut out, since no one would be foolish enough to continue to increase the amount of labor spent on a piece of ground after the output, whether measured in the land or in the labor, was diminishing. So, the first stage would be excluded, since any of its combinations would give a smaller return, whether measured in land or in labor, than the first maximum combination—number 9 in our original table;—and any of these inferior combinations could be changed into the first maximum by simply letting some of the land lie idle. Accordingly, under normal conditions, a piece of land would be worked in one or another of the combinations ranging from the labor maximum to the land maximum.

But, again, in representing the practical combinations as ranging from the labor maximum to the land maximum, we are still recognizing a wider range than the facts will usually warrant. In the real world, the land is probably never cultivated to the point of maximum capacity or returns; while, on the other hand, in older countries, anyhow, most of it is probably cultivated beyond the stage of maximum efficiency. Generally speaking, it would pay to hold back the cultivation of land at Combination 9 only when land could be had in unlimited amount without cost; so it would pay to drive the working of the land

as far as Combination 19 only when labor could be had in unlimited amount without cost. Accordingly, the combinations in actual use are usually to be found among those which we have called inter-maxima, *i. e.*, 10 to 18 in our *original table.** Putting this into formal shape, we have the following

Principle. *Barring accident and error, divisible factors assisted by divisible factors will normally be found in some of the combinations which range from that of maximum efficiency to that of maximum returns, i. e., in the stage of diminishing returns or diminishing efficiency.*

(3) Conventional Law of Diminishing Returns.

To bring our discussion into closer accord with conventional methods of treating the matter before us, I will formally set forth what is an obvious corollary from the general principle laid down on page 107, viz., the point that, if we try to increase indefinitely the product from any given instrument of production, said instrument will some time or other get into the stage of diminishing returns or diminishing efficiency. The following will answer as a formal statement:

Principle. The Instrumental Law of Diminishing Returns.

In the process of attempting to utilize more completely any productive instrument by increasing the amount of the assisting factors combined with it, in other words, by expending more upon it, there comes a stage during which output, though continuing to increase, does so more slowly than the assisting factors are increased,—it being assumed that all other conditions are unchanged, there being no improvement in technical methods, no deterioration in the instrument, and so on.

(4) The Law of Diminishing Productivity.

The foregoing principle has brought out the chief point involved from the standpoint of the constant factor. As we saw earlier, substantially the same point can also be expressed from the standpoint of the changing factor. As we most usually conceive the matter, the constant factor gives off a larger output but not one as much larger as is the expenditure of the changing factor. But, in one very important connection, we are following the changing factor and conceiving it as making smaller and smaller

*I hardly need say that a table corresponding to the facts of land culture would be no such simple or symmetrical one as that which we have used.

additions to output. From this viewpoint, we have the Instrumental Law of Diminishing *Productivity.*

Principle. The Instrumental Law of Diminishing Productivity. *Under normal conditions, the marginal productivity of either factor in a divisible factor combination tends to vary inversely as its quantity.*

2. One Factor Indivisible.

Thus far in our analysis we have assumed that our combining factors, A and B, are *divisible;*—that we could cut down at will the amount of A or B—of land or labor—used. If we had 20 As and 8 Bs—Combination 7 in our first table—we could choose the superior combination, No. 9, by simply throwing aside 4 of our As. But this assumption, that any and every factor is perfectly divisible, is obviously too sweeping. Many things are; but many others are not. Thus, a furnace for heating the house, a plant for supplying power, a draft animal,—none of these can be divided, and, so, with none of them can the amount used be arbitrarily cut down. Does this fact alter the principles governing these cases? No and yes. As respects *possibilities,* this new case is substantially the same as that which

TABLE III

I	II	III	IV	V	VI	VII
No. of Combination	*Amount of Power Plant*	*Amount Coal, lbs.*	*Output horse power*	*Proportional Increase*	*Actual Increase*	*Average per lb.. coal*
1	1	200	30	....	....	.15
2	1	240	48	6.	18	.2
3	1	280	64	8.	16	.228
4	1	320	77	9.1	13	.242
5	1	360	89	9.6	12	.248
6	1	400	100	9.9	10	.25
7	1	440	108	10	8	.245
8	1	480	114	9.8	6	.237
9	1	520	118	9.5	4	.226
10	1	560	121	9.	3	.216
11	1	600	123	8.6	2	.2
12	1	640	124	8.2	1	.193
13	1	680	123	7.7	— 3	.18
14	1	720	110	7.2	—18	.154

we have considered. A furnace, a power plant, a draft horse. over aganst the fuel or food necessary to get work from it, will show the same three stages and the same two turning points which we have already met. Thus, if we suppose ourselves to have control of a 100 horse-power power plant, consisting of a single unit, and to make with it a series of experiments by which the coal fed to the furnace should increase in successive experiments from 200 pounds to 640, there can be no doubt that we should have results substantially as represented in the following table Here the return per power plant and per pound of coal increases up to Combination 6; from there to Combination 12, the return per plant continues to increase but that per pound of coal declines; from 12 on, the return per plant or per pound of coal declines.

We have seen that this case of an *indivisible* factor gives us the same three-stage principle which we had before, *provided we are considering possibilities.* When, however, we ask as to *actual, practicable,* combinations, the answer shows some noteworthy differences from the case of divisible factors. In the first place, the practical combinations are not limited to the second stage. Those of the third stage, indeed, are shut out:—no one will knowingly feed additional coal to a power plant after this begins to cause a diminution in the power supplied. But, while the third stage is excluded, the first is not. Third-stage combinations are shut out because a better alternative is always open;—a producer can always withhold the excess of coal and make his total higher. At this point he would better give the coal away than to feed it to his furnace. When, however, we are considering first-stage combinations, the case is different. Since a single-unit power plant is *not divisible;* it must be used as a whole or not at all. Consequently, when the need falls off, when we want less than the maximum power per coal unit, we can not maintain the best combination, No. 6, by simply leaving a part of the plant unused. Instead, we have to run the whole outfit at a lower stage of efficiency.* It follows, then, that, in an entirely reasonable handling of indivisible instruments of production, they will be used in the first or ante-maxima stage,—the stage in which the total output is smaller

*This suggests one of the advantages of large-scale production. If we have a central plant providing for many needs, we can make it up of several units; so that, when the need falls off, we can leave some of these units unused.

than it might be from the same amount of capital, were it properly distributed between the instrument (the furnace) and the auxiliary factor (the coal).

In the second place, indivisible factors, *if also porducible* work differently from divisible in another respect. While they occasionally have a wider range of combination, they *normally* have *a smaller* one than do divisible factors. Thus, a single-unit power plant, though indivisible, is also producible and so can be *consciously adapted to produce most advantageously the particular output which will normally be demanded from it.* This means that such a plant will normally be constructed of such a size that, in order to perform its task, it will be worked in a combination little if any beyond the one of maximum efficiency, that is, the one giving the largest average per unit of coal. This would coincide with the maximum-efficiency combination exactly but for the fact that the larger plant costs something more than the smaller and so the saving in coal is partly offset by increased interest charges. In any case, there will be *just one* combination in which an indivisible factor will normally be worked either the maximum-efficiency combination or one but little beyond it; though, under exceptional circumstances, we shall work it in the first or ante-maxima stage. It should be added that, under other exceptional conditions, we shall have to work it in combinations which come *later* than the normal one. If circumstances are such that we need to get out of a particular heating plant all we possibly can even though fuel is thereby used wastefully, we naturally drive the plant into the very last combination which shows any increase over its predecessors. To apply these various considerations to the case embodied in our table, a plant would normally be used in combination 6 or anyhow one not much beyond; but in times of exceptionally small demand it would be used in any from 5 to 1, while in times of exceptionally great demand it would be used in 10 or 11.

Principle. *It is perfectly normal for indivisible factors the supply of which can not be multiplied indefinitely to be worked in either the increasing-returns or the diminishing-returns stage.*

Principle. *Indivisible producible factors will normally be worked in the combination of maximum efficiency or in one nearly approximating that, but will at times be used in some*

increasing returns or some later diminishing returns combination.

Note: The point embodied in the principle just stated, that indivisible producible factors are normally used at or near the point of maximum efficiency, must not lead us to think that capital in general is being used in this stage. The combination of maximum efficiency for any element is the one in which that element appears in the largest proportion in which it can be present without being in excess. But to say that capital in general has reached this stage is to say that there are no possibilities left in the way of machines, roads, bridges, tunnels, *etc.*, whereby our efficiency could be increased,—a statement which is obviously untrue.

3. Heterogenous Combinations.

In beginning this study of combining proportions, we started with the case of *simple* or homogeneous combinations wherein the assisting factor plays just one role with respect to the constant factor. Thus, we thought of all the labor used on a piece of land as devoted to *cultivating* it in the narrow sense,—stirring the soil—; so we thought of all the capital used on the land as taking the form of *fertilizer*. Still more perfect cases of this sort would be furnished by the draft animal over against the food supplied to it or the furnace over against the coal fed to it. But we hardly need say that the combinations of the real world are not of this simple character. We do not put all the labor used on a piece of ground into cultivating it or all the capital into fertilizer. Instead, some of the labor used on the land is devoted to preparing the soil, some to seeding, some to cultivating, and so on; while some of the capital is spent on tools, some on seed, some on fertilizer, some on machines, some on storage facilities, and so on. In short, in real life we have to deal with cases of *complex* combinations wherein the new supplies of the changing factor *are largely set to performing new functions* instead of just performing *more fully the old ones*. Now, when we study changing combinations from this point of view, how greatly do we need to modify the conclusions already reached,—the principles already laid down?

In the first place, we of course still have the possibility of a stage of returns increasable at increasing rate; since we could have this if there were only one function which the changing factor could perform. The only question, then, is whether the new condition tends to lengthen this first stage. In general, we

may say that it would not tend to modify said stage at all; since the various functions are of different degrees of importance and the more important ones will usually be performed first, so that a second function would naturally be taken up only when we had passed through the first stage completely. To this, however, an important exception must be made. It is always possible that some very important function of a particular factor can be undertaken only *when we have a very large amount of that factor available, e.g.,* a system of drainage for particularly productive swamp lands. Accordingly, a great increase in a particular factor, especially capital, may suddenly put a given tract of land into a condition of greatly increasing returns. This, however, is obviously something exceptional which merely temporarily changes the course of things.

We have noted the effect of our new hypothesis on the increasing-returns stage. What is to be said as to that of diminishing-returns? Evidently enough, the existence of additional functions for a particular factor *checks,* puts a brake on, the working of the diminishing-returns principle. Before we have gone far into the diminishing efficiency stage in respect to one function, other functions present themselves in the performance of which our labor and capital will give larger returns than they would if devoted to the fuller performance of the first function. The general effect, obviously, is to prolong the diminishing efficiency stage,—diminish the rapidity of its downward gradation. But, while the new condition introduced into our hypothesis checks the tendency of efficiency to fall off, it surely can not destroy that tendency. There surely are not left unperformed an indefinite number of functions having an importance equal to, or greater than, that of the functions already provided for.

ILLUSTRATIVE PROBLEMS.

1. "Land of the second grade will not be brought under cultivation till all of the first grade has been cultivated to the point of diminishing returns."
Explain what is meant and why it is true.

2. "Very many pieces of capital, *e.g.,* a hoe, a reaper, are of such a nature that, reckoning by periods of any length (say a year), they simply have to be utilized in the ante-maxima stage."
Explain what is meant and why it is true.

3. Show that the law of diminishing returns applies to a piece of land used as a site for an office building.

4. The following quotation which is taken from a contemporaneous discussion of the law of diminishing returns, contains an implied application of that law which is quite unwarranted. Explain what that application is and show that it is unwarranted.

"It might be supposed that, with the qualifications stated, the law of diminishing return in this simple form, as applied to a certain portion of land, is so palpably obvious, so axiomatic, that it could never have been overlooked. There is, however, probably no other economic law of the first importance which has so often been forgotten or miscalculated. Mill himself has bestowed extravagant praise on the ardour and perseverance of peasant proprietors, although it is certainly true that much of their labour is pushed far beyond the point of diminishing return, and is, from the economic standpoint, wasted. * * * * Before recent legislation gave the Scottish crofters security of tenure and fair rents, they applied labour to the production of corn,—in this case barley or oats,—which in most cases had passed the point of diminishing return in the very first step taken. * * * * In Scotland, generally, the farmers are probably the most enterprising and most efficient in the world; but it too frequently happens that they themselves apply, and in some cases induce their landlords to apply, capital beyond this point of diminishing return."

5. "It is quite impossible to believe that industry as a whole is *saturated* with capital."

Explain what is meant and why it is true.

6. "If there were no such thing as the law of diminishing returns, a man having a one-horse shop could become a millionaire in a few years by simply doubling his capital from year to year." Criticise.

7. "If land always remained in the stage of increasing returns or that of constant returns, it could never have any value or bear any rent." Explain.

8. In what condition as respects efficiency would you expect industrial plants to be in boom times? in the depressed times following a panic?

9. A certain boiler is evaporating 700 pounds of water per hour at a cost of 100 pounds of coal, while it could evaporate 1,225 pounds of water at a cost of 150 pounds of coal. In what stage, as respects efficiency, is it being worked? Prove.

10. A certain telephone plant takes care of 900 subscribers at a total cost per annum of $4,700. It could take care of 950 subscribers at a cost of $4,850. In what stage of efficiency is it being worked? Prove.

11. "Transportation is not in the stage of diminishing returns, else no other railroads would be built. If existing roads did not make profits, new ones would not appear." Student's report. Criticize.

12. Two or three years ago the Bell Telephone Company put in an entirely new plant at Ann Arbor. In what stage, as respects returns, is that plant likely to be at the present time? Explain.

13. "The telephone plant is probably in the state of increasing returns: *i.e.,* if they could get new subscribers, the cost of maintenance would not increase proportionally to the increased rents collected." Criticise.

Section B. The Efficiency of Industries as Wholes in Relation to Size of Output.

One of the most important applications of the general theory of Combining Proportions and Product respects the capacity of any particular quantity of any factor, say land, to increase its output, with the aid of an increasing quantum of auxiliary factors, in response to an increasing demand. We are trying to get more product out of a given farm, what success do we have? Now, this problem is important in itself, particularly to the owner of the farm. But there is another problem, depending largely for its solution on the solution of this first problem, which is of much greater importance to people generally as distinguished from the owner of a particular farm. This second and more important problem asks, not what success shall we have if we try to get more product from a particular piece of ground, but rather what success shall we have if we try to get a larger product from *some particular industry*--say wheat raising—*taken as a whole.*

Note: This new problem does not, like the first one, require us to keep one of the factors, land, constant:—we may devote to the industry under consideration, not only more capital and labor, but also more land. It, therefore, seems so different a problem from that already considered as to make their study under the same topic scarcely legitimate. Anyhow, to make use in this connection of the same terminology as that hitherto employed seems of very questionable propriety. To talk about a stage of diminishing returns for a combination in which one of the factors remains fixed in amount and then use the same expression for a whole industry in which *all* the factors may change in amount seems a very unscientific procedure. In respect to the propriety of considering the two problems together, it is to be said that they are in fact very closely connected. Whether or not an industry as a whole is in the state of diminishing returns or in that of increasing returns depends, for one thing surely, on whether the particular factors employed in that industry are in said state. In respect to the mat-

ter of terminology, to make these very diverse uses of certain phrases is surely bad; but it is too well established in usage to be thrown out at the present time.

Taking up, now, the matter of *possibilities* for industries as wholes, and assuming general conditions to remain constant, we surely have results which, in form at least, are analogous to those already reached in our study of individual factors. Any industry, taken as a whole, if we were to try to get from it all quantities of output from a very small amount up, would be found at some time or other in each of the following conditions or stages: (1) output increasable at increasing rate or diminishing cost,* (2) output increasable at constant rate or constant cost, (3) output increasable at diminishing rate or increasing cost, (4) maximum output or maximum cost, and (5) output actually diminishing. This last of course would never be realized, just as in our former case, because it would be foolish to expend effort in diminishing rather than increasing product. The fourth stage would be merely a point as in our preceding case; since there could be but one maximum output. The second stage, however, would not as in our original case be a mere turning point from increasing to diminishing returns. Conditions would be constantly occurring under which the quantity producible without any material change in cost would be so considerable that, during periods sufficiently long to make the matter of much practical importance, we should be getting the necessary increases in output with only a proportional increase in expenditure.

The above paragraph has dogmatically asserted for every industry the existence of three different stages in which it might be found under a perfectly rational procedure. Let us take a moment to confirm this statement. In respect to the first stage, diminishing cost, we should expect its existence for two or three reasons. First, the moment we come to deal with industries as wholes, we strike the matter of possible increase in specialization. Thus, if the amount of product which we must get from an industry is large enough, we can carry very far *geographical* specialization,—raising potatoes or apples or watermelons from the lands preeminently adapted for raising them; and this, of course, means more than proportionally increased returns for our expenditure and, therefore, diminishing costs.

*For the sake of convenience we will commonly employ the "cost" rather than the "returns" phrase.

A second reason for this result is to be found in the fact that calling on a given industry for an enlarged output means that increasing resort may be had to large-scale methods. We can make more use of machinery, can have greater specialization within each plant, and so on. All this means diminishing costs.

But, again, it surely can not be questioned that every industry would sooner or later get into the diminishing returns or increasing cost stage. One fundamental factor of industry, land, is absolutely limited in amount. Every single piece of it is surely subject to the instrumental law of diminishing returns, and so, of course, the total is subject to that same law. It follows that, even if all the land were equally good for the purposes of a given industry and we could afford to put all of it to the service of that industry, there would surely come a time when increased expenditure was not followed by proportionally increased reward,—when increase in product meant more than proportional increase in cost. But we hardly need say that not all lands are equally good for the uses of any particular industry. Whether because of location or of qualities which could be altered only at an impossible expenditure, they differ greatly in fitness for a given purpose. In consequence, land as such comes under the dominion of the law of diminishing returns (returns increasable at diminishing rate) much sooner than it would under the former hypothesis.

But, it may be asked, would not the considerations adduced above to show that we may have a condition of increasing returns prove that we might go on indefinitely without ever reaching the stage of diminishing returns. May not the advantages derivable from greater specialization or from an increased resort to large-scale methods forever save us from falling into that dread condition? The answer must surely be a negative one. There certainly is a limit to the advantages derivable from specialization and large-scale production. Every industry whatsoever, if called upon to increase its output indefinitely, would ultimately pass into a stage of diminishing efficiency or increasing cost.

But, not only would every industry under the conditions of our experiment, inevitably be at some time or other in the condition of diminishing cost and at another in that of increasing cost, in many cases anyhow, it would at some time or other be in the condition of substantially constant cost. This merely

means that the transition from the condition of diminishing cost to that of increasing cost is not a mere point, but may extend over a considerable change in the volume of output. When we remember that, in this case of industries as wholes, we are at liberty to increase *all* the factors so long as more of the stock of each is available, the *possibility* of such a condition of constant cost seems plain enough. Land, of course, is the factor which is most likely to fail us. Yet it surely must be admitted that there are many pieces of ground of substantially the same grade of efficiency, counting location, fertility, *etc.;* and, until all of the best grade had been put to use, the particular industry involved would be getting out its product at unchanging cost,—supposing no change in technical conditions. But the case is still clearer with industries which do not need so large a proportion of land. Just because of this fact, the number of sites which are of substantially equal efficiency for the industry in question is in excess of the need, and, so, production can expand without being checked by the scarcity of the only factor which is strictly limited.

We have argued that any industry, taken as a whole, *may* be in any one of the three stages as respects the relation of cost to increasing output. It should be added that these stages may alternate with one another in any order. An industry may be at one time in the condition of constant cost, then in that of diminishing cost, then in that of constant cost again, then in that of diminishing cost, and so on. More particularly, for every change there will be a period of constant cost. If the enlarged demand for copper causes marginal cost to rise to 20 cents, and if, at this marginal cost, output can be expanded, let us suppose, to any figure between 700 millions pounds and 900 millions; then, for a period during which demand ranges no more widely than this, copper would be a constant-cost good.

We have seen that any industry may be in any one of three conditions: **diminishing cost, constant cost, and increasing cost.** But we should naturally expect, and experience confirms the expectation, that some industries would be preponderantly in the first stage, others in the second, still others in the third. Thus, it is the accepted opinion among authorities on railway transportation that this industry is preponderantly in the condition of diminishing cost or increasing returns. Again, there can be no doubt that a large number of common manufacturing

industries are most of the time in a condition of constant cost. Finally, the so-called extractive industries, looked at in the long run anyhow, are commonly viewed as in the condition of increasing cost: if we insist on using considerably larger quantities of copper, silver, cotton, wheat, *etc.*, we shall have to consent to incur a higher cost in acquiring them. These distinctions among commodities, as will appear in Chapter IX, furnish the classification of producible commodities commonly used in the study of normal value.

Up to this point in our discussion of the effects on cost of attempts to increase the output of any industry, we have assumed in a general way the maintenance of conditions which, in respect to fundamentals, are static, unchanging. A particular industry is in the condition of increasing cost, *it being assumed that methods remain constant, save in so far as these experience the changes natural to the changing scale of production.* It is of course possible, and often probable, that the course of discovery and invention will make the production of refined petroleum cheaper next year than it is this year. In consequence, the cost of furnishing an output 500 millions gallons larger than the present one, may prove a smaller cost per unit than the cost now incurred. This, however, would not disprove the statement that the petroleum industry is in the condition of increasing cost. Such a statement in any field of study assumes *static* conditions. It is of course permissible for persons to insist on taking into account possible changes of a fundamental sort, whenever they make statements with respect to the cost conditions of an industry. But, in that case, the difference in the assumption set out from should be made clear. It is surely of no advantage to contradict with heat the statement of some other writer when you are understanding that statement in a sense quite different from the way in which he understands it. Assuming that both these methods of interpreting such affirmations are legitimate,* they ought to be distinguished as being, respectively, *static* and *dynamic* assertions with respect to the present condition of the industry in question.

*This assumption is of doubtful validity. The affirmation naturally means that the larger output will cost less per unit than the smaller. The dynamic interpretation makes it mean that the future product will cost less than the present.

Summarizing the discussions of this section we have the following principles:

Principle. *Every industry, if called on in successive production periods to increase its output from some very small quantity to the largest possible, will appear at some time or other in each of the following stages or conditions: (1) diminishing cost, (2) constant cost, (3) increasing cost, and (4) maximum output,—static conditions being assumed.*

Principle. *At any particular time, some industries will normally be in the condition of diminishing cost, some in that of constant cost, some in that of increasing cost.*

ILLUSTRATIVE PROBLEMS.

1. Argue for the reasonableness of the proposition that, if the marginal cost of producing copper should rise from, say, 20 to 25 cents per pound, at the latter figure this industry would probably be for a time a constant cost industry.

2. Give some reasons for believing that railway transportation is likely to be much of the time in the condition of diminishing cost (increasing returns).

3. "Silver, iron, wheat, meat, *etc.*, without much doubt should be classed as increasing-cost products."
(a) What does this mean?
(b) Argue for the reasonableness of the statement.

4. "Agriculture in Virginia is in the condition of diminishing returns, as the land is worn out."
Show that this misapprehends the meaning of the phrase diminishing returns.

5. An industry like the making of surgical instruments is likely to be in what condition? Explain.

6. "The gas business in Ann Arbor is in the condition of increasing returns; since fixtures and pipe could be put into many more houses with small additional expense proportionately to *the returns gotten from the new patrons.*"—Student's Report. Show that the writer did not understand what is meant by the condition of increasing returns.

7. "The price of increasing-cost goods tends to equal their marginal cost of production."
(a) What do you suppose is meant by the phrase "marginal cost of production"?
(b) Show that the proposition laid down does not give a very definite idea of what the price of such goods will be next year, even if we know their marginal cost now.

8. Suppose that, while competition in the industry is still maintained, the conditions of production for a particular type

of wooden chair are such that, if fewer than 1,000 chairs a year are produced, the cost per chair will be about $3; that, if output is between 1,000 and 20,000, cost will be about $2; that if it is between 20,000 and 50,000, cost will be $1; if between 50,000 and 500,000, 50 cents; if between 500,000 and 2 millions, 30 cents; if between 2 millions and 3 millions, 40 cents; if between 3 and 4 millions, 55 cents; if between 4 and 5 millions, 75 cents; if between 5 and 6 millions, $1.25; and so on.

(a) Suppose that in the year 1906, 700,000 of these chairs are produced; that by 1915 the output has increased to 1,300,000; that by 1925 the amount is 1,600,000; and that by 1940 it is 1,800,000. To what class of goods would these chairs belong during the period 1906 to 1940, looked at as a whole?

(b) Suppose that between 1950 and 2000 the output should increase from from 2,300,000 to 6 millions. To what class of goods would these chairs belong during that 59 years, looked as at a whole?

Section C. The Efficiency of Countries as Wholes in Relation to Volume of Output.

In the preceding section we applied our analysis of the general relations of Combining Proportions and Product to the problem of how industries as wholes behave when called on to increase their total output. We now come to the most important problem of all,—how **countries** or communities as wholes respond to such a demand. At any given moment the United States has a particular outfit of natural resources, of capital, and of labor. What will be the effect of trying to increase the total product obtainable from this outfit by increasing the proportion of one of the factors, say capital or labor? This is surely a question of much significance to all of us, but more especially to the particular class of persons who are responsible for the particular factor which is increasing. This grows out of the principle, already noted (p 102) and later to be explained, that, under the normal working of the laws of price, each contributor tends to get that return which expresses the significance of the marginal contribution of his class; from which fact it follows that, if the increase in his class lowers its marginal product, he will get a smaller return. Accordingly, we now undertake to determine how changes in the total stock of any particular factor belonging to a particular community affects its productive capacity in general.

It is hardly necessary to say that the question before us is one of much complexity. At first sight it seems natural to give

that question a *dynamic* interpretation. We would seem to be most interested in what is actually going to happen in the real world, not in what would happen under theoretically static conditions. Doubtless this is true to some extent; but generally speaking, our highest interest is still in the problem under static conditions. Even if we are fortunate enough to escape the natural penalty of excessive population because of greater technical efficiency, this does not excuse our folly. We should be still better off if population were smaller; since, by hypothesis, the lower cost of production has no connection with the increase of population, but results from discovery and invention. Accordingly, we ask ourselves the question whether communities as such, static conditions being assumed, show themselves subject to the same laws of return already considered, exhibiting themselves in the several stages of increasing, constant, diminishing, and maximum returns with which we are now familiar, and, if so, what variations from the results previously met with are here to be noted.

To the general question whether countries or communities, considered as wholes, show, under static conditions, the same stages, as respects the relation of efficiency to changes in total output, there surely can be but one answer,—the affirmative one. In the first place, every country of any size is certain to be in the condition of increasing returns or increasing efficiency in the earlier stages of its development. This is not to say that any particular piece of ground will necessarily be employed in that condition; as we said earlier, farmers would work the land actually at the point of maximum efficiency simply by keeping a portion of the land out of cultivation, spending their efforts on a smaller piece. But, in dealing with a country as a whole, the case is quite different. Here the element of organic combination comes in. To get the most out of our outfit of land we have to treat it as a sort of manufacturing plant, an indivisible unit, having many parts coordinated into a functional whole. Thus, our natural store of the metals is to be found only in a few places; only a small territory can be used for raising tropical and semi-tropical products; and so on. It follows that the best use of the whole involves geographical specialization, which, like all specialization, is possible only with a large market, and this must depend on a large population. Further, some parts of our natural plant are built on a very large scale

and could not be utilized at all or could be utilized only in a very petty way, unless we had a large population. For example, we had from the first the basis of a magnificent system of water transportation in the great lake chain; but it is only as population has developed all through this region that we could begin to utilize this great outfit at all fully. The harbors of a country also illustrate this idea of an indivisible natural plant, which requires a great population and a great commerce to secure its utilization to the point of maximum efficiency.

We have seen that any country taken as a whole is certain, in the days of its early development, to be in the condition of ante-maximum efficiency, increasing returns. It is no less certain that a country is likely to remain for a longer or shorter period in the condition of constant returns. After population and capital have developed to a point where the country is being utilized at substantially its best, there are still unexhausted resources, possibilities, of the same general grade as those already used. The larger the country and the more diversified its natural resources, the greater are these possibilities. Further, some of the industries of a country continue to be in the condition of increasing returns after the greater number have passed that stage. The actual condition would then be a resultant of counteracting forces and might easily be a condition of constant returns.

Again, it can not be doubted that some time or other the country will be in the condition of diminishing returns—returns increasable but at a diminishing rate. It is of course possible that some industries would never in practice be pushed into this stage, since the major part of human effort would necessarily be spent on the great basal industries,—the industries which cater to the common, universal needs. But, in the case of the basal industries anyhow, there would surely come a time when we could not increase product save at greater cost per unit. The considerations already brought out would doubtless delay the coming of this condition; but it would certainly come at last. The advantages to be derived from larger scale and from a more perfect coordinating of social resources are surely exhaustible, though the time of their exhaustion may be more remote than is commonly supposed.

Finally, it is surely conceivable, though the possibility is not

likely to prove of great practical significance, that a time will come when *output can no longer be increased at all.*

We have insisted that, broadly speaking, any country, taken as a whole, may be brought into any one of the four possible stages. We now must emphasize a point already more or less sharply brought out by implication; *viz.*, this, that the process of passing through all the stages is vastly slower in the case of a whole country than in the case of a single piece of ground. Any country, taken as a whole, may be undermanned, under-populated for a long period. Increases in population may increase product more than proportionately or at least proportionately, for many years, even for centuries. In addition to the considerations bearing on this point which have already been brought forward, the following may be adduced. The industry of a whole nation is a complex of many different industries. Now, as already seen, industries do not pass into the diminishing stage with equal rapidity. Some industries almost never reach this stage. Taking a country as a whole, in respect to some part of its economic activity, it has probably reached the diminishing returns stage; in respect to another part, it is in the constant returns stage; and, in respect to another part, in the increasing returns stage. In so far as increase of population means undertaking to increase output from the second and third groups, a condition of diminishing returns is shut out at once; it is only from the diminishing returns group of industries that a condition of diminishing returns for the country as a whole can be reached. Now, it is doubtless true that the new demand created by a general increase in population falls with rather disproportionate weight on the extractive industries, especially stock raising and agriculture, and, therefore, on industries in which the stage of diminishing returns is reached at an early date. Yet this can be overstated. Very important elements even in the extractive industries are those parts which are concerned with the transporting and exchange of products. But, as already explained, the transportation industries are believed to be most commonly in the state of increasing returns, and the exchange industries are usually in the condition of constant returns.

We have seen that a country as a whole is naturally much slower in reaching the point of diminishing returns than any single piece of land in that country. It seems even more cer-

tainly true that a country will remain almost indefinitely *within* this diminishing returns stage. That is, an industrious, thrifty, and ingenious people seem to be able to increase almost indefinitely the density of population without reaching the point where returns altogether cease to expand. The new people have to content themselves with a lower and lower standard of living; but they add *something* to the total output, and, therefore, do not have to starve.

In the foregoing discussion of the behavior of a country taken as a whole, we have assumed that the fundamental conditions of production are unchanged—a static order of things prevails. If, now, we admit the dynamic element, leaving the way open for changes in productive efficiency brought about by discovery and invention, we must emphasize still more strongly the point just made, that a country as a whole passes with very great slowness through the several stages,—especially the diminishing returns stage. It has in fact always been recognized by economists that the principle of diminishing returns is liable to be offset at any time by improvements in method. The 100 millions units of today may be less easily produced than the 200 of tomorrow. This is not necessarily a real suspension of the true law of diminishing returns; since that law means that the 200 millions of tomorrow will be produced with greater proportional difficulty than the 100 millions of *tomorrow;*—and this probably would continue to be true. But, while not a true suspension of our law, this fact of improving methods mitigates greatly the harshness of the consequences of that law, and so is of much significance and advantage to society. The man who is attempting to predict the future economic condition of society must surely take account of these possible changes in the fundamental methods and processes of production.

Principle. (*a*) *Countries, taken as wholes, like individual industries, may be found in the condition of increasing returns or in that of constant returns or in that of diminishing returns or in that of maximum returns.*

(*b*) *Countries, taken as wholes, are consequently subject to the so-called Law of Diminishing Returns; i. e., the time will come when efforts to increase total output can succeed only through more than proportionate increase in expenditure.*

(*c*) *The stocks of the several productive factors belonging to any country are subject to the so-called Law of Diminishing*

Productivity; i. e., the time will come when the marginal productivity of any factor will vary inversely as its quantity.

(d) Countries as wholes and their stocks of factors reach, and pass through, the diminishing returns or diminishing productivity stage more slowly than do individual factors or industries.

(e) The tendency of a country or any one of its factors to show diminishing returns or diminishing productivity can always be temporarily offset by discovery or invention.

ILLUSTRATIVE PROBLEMS.

1. "On the whole I am disposed to think that the United States is still undermanned."

(a) Explain what is meant.

(b) Argue for the correctness of the opinion given.

2. "If laborers would accept low enough wages, it would, under normal conditions, be almost impossible for employment to fail."

Argue for the correctness of the above statement.

3. "All land is subject to the law of diminishing returns. Consequently, every increase in population means that *the margin of cultivation has to be pushed lower,* that the food of the masses costs more than before, and so the amount of poverty ever increases."

Objector. "Such talk is all nonsense. There is no law of diminishing returns. It costs less to raise a bushel of wheat now than it did a hundred years ago. The real trouble is that the existence of a right of private property in land causes an ever increasing share of the product of industry to go to landlords in the shape of rent."

(a) Explain the meaning of the clause: "the margin of cultivation has to be pushed lower."

(b) Does the fact (supposing it to be a fact) that "it costs less to raise a bushel of wheat now than it did a hundred years ago" justify the sweeping statement that there is no law of diminishing returns? Explain.

(c) Formulate a proposition which it would justify.

(d) If there were no law of diminishing returns in some sense or other, could any of the product go to the landlord as rent? Explain.

(e) If the law of diminishing returns were not true even dynamically, could "an ever increasing share of the product of industry go to landlords"? Explain.

4. If population keeps on increasing as at present, every year is going to make the feeding of the race more difficult."

Show that the above conclusion does not necessarily follow from the law of diminishing returns.

CHAPTER V.

THE MECHANISM OF EXCHANGE.

With the present chapter, we begin the study of that topic which forms much the most important part of Economics, i. e., **Exchange.** The first matter to be considered under this head is the Mechanism of Exchange, i. e., the instruments and processes through which exchanging is effected. This involves going into the study of industrial technique more fully than is contemplated in our general plan. But the difficulty of this technique in the case before us and the need for pretty full knowledge of it as a preparation for the study of the principles involved, make this seeming inconsistency necessary.

Section A. **Money Exchange.**

The most obvious and natural form of exchange is manifestly the direct exchanging of goods for each other,—**barter,** as it is called. Mr. A who has wood to spare and wants a harness, gets into communication with Mr. B who has a harness to spare and wants wood, and a mutual exchange is effected. But no argument is needed to convince any one that this method of effecting exchanges must, generally speaking, be highly inconvenient and altogether inadequate. The necessary coincidence between exchangers as respects the kinds and amounts of goods wanted and offered, is one which would be realized only in exceptional cases and even then would be discovered only after considerable trouble. Quite likely there is no one who wants the goods offered by Mr. A and at the same time can supply the goods wanted by Mr. A. The only solution of the problem would often be a *triangular* arrangement, by which Mr. A disposes of his surplus to Mr. B and gets the equivalent desired from Mr. C. Doubtless it would be possible to work out such a solution by means of a complicated system of credit barter. But a simpler solution is the one actually in use which may be called **mediated exchange;** by which we mean exchange where in a *third something* comes in to act as a *middle term* between the two kinds of goods which Mr. A offers and wants respect-

ively. This third something Mr. A *gets* from Mr. B in exchange for his own wood, and in turn *gives* to Mr. C in exchange for the latter's harness.

Doubtless the earliest form of mediated exchange was one in which the third factor or **medium of exchange** was some real use—commodity; i. e., some commodity which most people wanted for some use to which it could be put directly, as, for example, cattle, hides, lumps of salt, cubes of tea. But quite early people got in the way of more or less completely devoting some one thing to this office *exclusively*,—setting up some one thing as the regular, conventional, medium of exchange, which people would rarely put to any other use. Such a *specialized* medium of exchange is called **money**; and a system of exchange employing such a medium is **money-exchange.**

The preceding discussion, in bringing out the nature of money-exchange, has also of necessity brought out the *primary function* of money,—to act as the official **medium of exchange.** A second function, which naturally attaches itself to the official medium of exchange and is in some connections almost as important, is to act as the generally used **measure of values,** that is, the thing in which the values of goods are computed and expressed.

Analysis of a Typical Monetary System.
(See Reading X.)

In the beginnings of money-exchange, the money used was little more than official ingots of one or more precious metals. But with the evolution of an elaborate commercial order, the primitive money has developed into a complicated **system** consisting of several different kinds of money each adapted to a special sort of work, but all embodying a common unit and based upon a common standard.

The first thing to be noted in such a monetary system is the *unit or principal denomination* and the *subordinate* denominations related to the unit as multiples or fractional parts thereof. In our system, the unit is a dollar; subordinate denominations are the cent, dime, half-eagle, eagle, and double eagle. In Great Britain, the unit is a pound or sovereign; in France, a franc; in Germany, a mark; in Russia, a rouble; and so on.

Next after the different denominations of a monetary system comes the *standard,* which is properly defined as *that which*

fixes the value of the unit. In the United States, the ultimate standard is a lump of gold weighing 23.22 grains pure or 25.8 grains when alloyed. Whatever value such a lump of gold has, the dollar also has. If the value of the lump goes up, so also does that of the dollar. The relation of the monetary standard to the system is closely analogous to that of the standard of liquid measure to that system. That is, just as 8.33 pounds of pure water determines what shall be the volume of a gallon measure, so 25.8 grains of gold determines what shall be the value of a dollar.

The monetary stock—the actual money—consists of *standard* money and several *subordinate* moneys. Standard money is the kind which immediately fixes the value of the unit, and in terms of which other moneys are reckoned. In a typical modern system, its most distinctive marks are the legal prerogatives of free coinage and full tender for debts. The chief subordinate moneys are, in our system, legal tender treasury notes, bank notes, silver dollars and their certificates, and subsidiary coin—fractional silver, nickels, and coppers.

The legal tender treasury notes are a quasi-standard money, i. e., they do more or less fully the work of standard money. Without them all institutions needing to keep reserves of money to pay demand obligations would have to keep standard money for this purpose. As it is, such reserves largely consist of these treasury notes (in England, Bank of England notes).

Bank notes, silver dollars, silver certificates, and subsidiary coin constitute the major part of the ordinary circulating money, the money actually, directly, used in the conduct of business. Subsidiary coin has the following characteristics: (1) being made of metal different from that which is the standard, (2) being short in weight, (3) having its coinage limited, (4) having its legal tender limited, and (5) being redeemable. The first characteristic is necessary to secure *convenience in size;* the second, to keep this kind of coin *from being melted;* the third, to keep it *at par;* the fourth, to hinder it *from displacing the standard* and to shut out forcing excessive quantities of it on creditors; and the fifth, to *relieve the public of any excess,* as also still further to insure the parity of this kind of money.

The silver dollar is more or less of an anomaly in our system, having full legal tender but not being freely coined. In effect, it acts as a subsidiary coin of large denomination.

ILLUSTRATVE PROBLEMS.

1. Illustrate with concrete examples the drawbacks of barter as a method of exchange.

2. Illustrate the use of money as a measure of value in a case of barter.

3. In primitive communities the media of exchange have usually been objects desired for direct use and also objects commonly produced in the community. Give some reason or reasons for each of these facts.

4. During the first part of our history as a nation, silver fractional coins had the prerogatives of standard money, i. e., were freely coined and had the status of full legal tender. But in 1853 Congress deemed it necessary to put this kind of money into the position of subsidiary coin. How do you explain the fact that Congress got around to this opinion at about that particular time?

5. Between 1890 and 1896 it was a common practice to put into notes and mortgages a clause providing for payment in gold coin of legal weight and fineness. Try to get the proper explanation of this fact.

6. When I say that 12.9 grains of gold .9 fine is the monetary standard of the Philippines, what is meant?

7. In the United States in the year 1868, when gold payments on treasury notes were suspended so that a gold dollar was commonly worth from $1.20 to $1.40, one of the great political parties proposed to pay the national debt in these irredeemable treasury notes,—which proposal, however, was defeated in the Federal election of that year. In discussing the matter, writers commonly speak as if the national creditors objected to being paid in treasury notes rather than gold; whereas no one of them probably would have thought of asking for literal gold money. Explain in scientific language what was the precise issue of the controversy.

Section B. **Credit Exchange.**

In the preceding discussion it has been assumed that, even under modern conditions, practically all exchange is money-exchange in the sense that money actually changes hands in every transaction. But of course the student is aware that this is not the case. Almost all payments outside our own place of residence are made by means of documents, usually orders to pay money issued by the postoffice, by banks, or by express companies. Even within our own community, a large number of payments are effected by orders commonly called checks. If these orders were immediately presented for cash, the transaction

would really be one in which money was actually used, only the payment would be effected through an agent rather than by the debtor himself. But commonly, as we all know, the person receiving the check, instead of getting cash with it, presents it for deposit, so that the transaction is consummated without any use of money, by a mere transfer of credit from the account of the payer to the account of the receiver. This brings up a modification of money exchange which is of great importance in most English-speaking countries and which might be called *credit money exchange* or, more shortly, **credit exchange.**

1. Analysis of Credit-Exchange.

The real nature of credit exchange can most easily be brought out by beginning with the case of credit exchange between *two* persons only,—book credit, as it is commonly called. Where there is reciprocal buying between two persons *at the same time,* it is obviously needless for each to deliver the payment money. The natural procedure, plainly, is to compute the balance of the mutual obligations and have that balance paid by the one against whom it falls. If the two traders can trust each other, it is plain that a similar procedure is possible in the case of mutual purchases *made at different times;* for each can sell to the other *without getting his pay,* or by receiving as pay *the right to claim money later,* and at some future time the reciprocal obligations or debts thus created can be cancelled as far as possible and only the balance actually paid, just in the case of simultaneous purchases. In this simple case, we have the essential feature of credit-exchange, i. e., *bringing about in some way a* **reciprocity of debts** *so that a considerable* **cancellation** *is possible and only a balance has to be paid in actual money.*

In the case just used to bring out the nature of credit-exchange, i. e., book-credit, we have reciprocal buying between *two* persons, where reciprocity, and so possible cancellation, are assured. But there are comparatively few cases of this sort. Most of the buying of any one of us is from a set of persons quite different from those to whom he sells. In this case, however, a true *reciprocity of debts* exists between any one and *all the rest taken together.* If Mr. A. could in some way set what he owes everyone over against what everyone owes him, a practically complete cancellation would be possible. This will prob-

ably never be feasible. But the idea can be utilized within considerable limits. For example, it can be applied in the exchange relation of a man and his immediate neighbors. Mr. A may not sell anything to that particular one of his neighbors from whom he has bought something; but he will almost certainly sell to *some* of those neighbors. As an offset to the claims of them, taken as a whole, against him, he can almost certainly bring forward claims in his favor against them, *taken as a whole*. If, then, we can arrange in some way to have all or many of the debts of a man to his neighbors *pooled*, lumped together, and all of their debts to him *pooled*, cancellation, and so a great saving in the money needed, can easily be brought about. One of the most effective ways of doing this is to make some single institution a sort of *common debtor and creditor*, which institution then keeps effecting settlements with each of its patrons as itself the representative of all the rest. An example of this particular case is furnished by one of the most important kinds of credit-exchange; viz., **check-exchange.**

In the simplest form of check-exchange, the persons interested are all depositors in a common institution called a bank, i. e., they keep their funds in that institution. Mr. A then pays for his purchases by giving to his creditors orders (checks) on the bank. On the other hand, Mr. A *receives* pay *from* his *debtors* in the shape of checks on the bank, which he in turn deposits. Thus, Mr. A's transactions with his neighbors give rise, not to money payments between himself and them, but to a set of *debits to* the bank, on the one side, and a set of *credits by* the bank on the other. Obviously, these debits and credits can be cancelled, as far as they are equal, and money payment needs to be made only for the balance. What is true in Mr. A's case is of course just as true in that of his neighbors, as respects their relation both to his transactions and to any others which may arise. Thus, by working through a *common agent* who acts as the universal debtor and creditor, each is able to set his claim on all the rest over against his obligations to all the rest and so establish the *reciprocity*, and thus effect the *cancellation*, which make the essence of credit-exchange.

In the preceding case we have supposed that Mr. A and his neighbors keep accounts with the *same* bank. But much more generally there are several banks in the one place and Mr. A has many transactions with the patrons of banks other than his own.

At first sight, this seems to involve a return to cash exchange, since a check on one bank deposited with another will not be debited to the former bank for any length of time, but will be presented for cash within 24 hours anyhow. In fact, however, the bank which is debtor because of the supposed transaction will doubtless have come into possession of checks on the creditor bank which it can use to offset the claim against itself. Even if it has no claims against *that particular bank,* it will certainly have some against some of the others; and, as the banks will settle their mutual obligations on a pooling plan, these claims against other banks will do just as well as claims against its creditor in offsetting its debits.

The last sentence brings us to another very important development of credit-exchange, viz., the **clearing,** the settlement of mutual obligations among a number of different banks. Here the same device which enables Mr. A. to settle his debits and credits with a minimum use of money, viz., fixing things so that he is paired off against *all* other persons at once, is applied to settle the mutual obligations of banks. In general, the plan is to set up a common agent, a clearing-house association, with which each bank settles,—that association becoming the creditor of each bank for all claims of all other banks against that bank and becoming its debtor for all its claims against all other banks. A balance is then struck and whichever proves to be debtor, the bank or the clearing-house, pays the balance. Naturally, the clearing-house settles first with the banks which prove to be debtors, and then uses the money thus obtained to settle with the creditor banks.

The last two paragraphs have had to do with *check* credit-exchange. Another and much older form is *inter-local* credit-exchange, or what is called **Exchange** in the preeminent sense. This is the form of credit-exchange which is used to effect payment between different cities and countries with a minimum use of money. Here we have the same old device: claims for and against different countries, debits and credits, get into common hands so that reciprocity is established and cancellation is made possible. In practice, certain institutions in each country, banks or exchange houses, buy up all the claims on other countries and also sell for the use of their patrons claims on those other countries. Thus, they become the common creditors and the common debtors of the dealers of their country in its relations to

other countries; and the debit and credit relations which they maintain with other countries are maintained with institutions similar to themselves. It, therefore, becomes easy to set the debits of a country over against its credits, cancel these in so far as they are equal, and effect a complete settlement by paying a small balance in money.

2. Instruments of Credit-Exchange.

A side of credit-exchange to which we must give a moment's attention has to do with the **instruments** of exchange,—the papers, documents, used in effecting credit-exchanges. Nearly all of these are *orders for the payment of money,* made by one person, called the *drawer,* upon another person called the *drawee,* in favor of a third person (usually), called the *payee.* Property in such orders is transfered from one person to another by *indorsement,* i. e., by writing across the back the name of the payee or present owner, with or without some specific directions as to payment.

(1) The most familiar credit instrument is the bank *check* which has already been mentioned. It is an order for the payment of money *drawn by a depositor on his bank.* It is used chiefly at home, i. e., within the town where the drawee bank is located.

(2) One of the most important instruments of interlocal exchange is the **bank draft.** This is an order for the payment of money *drawn by one bank on a bank in another place, in favor of another party.* A bank draft is used when the initiative is taken by the debtor. He buys the draft, mails it to his creditor, who gets cash or credit for it from his bank, which, if not itself the drawee bank, proceeds to collect from the latter.

(3) A third class of exchange instruments are so-called *money orders,*—postal or express orders. These are drawn by local agents of the institution issuing them upon the central office, are sold to the debtor, sent by him to his creditor, who collects from the agent of the issuing institution located in his town.

(4) When the initiative in settling a transaction is taken by the seller or creditor, the instrument employed is most exactly named a *bill of exchange,* though this phrase is also often applied to international bank drafts. Such a bill of exchange, also called a commercial draft, is an order for the payment of money

drawn by a seller or creditor upon his debtor in favor of the drawer or his banker. (If in favor of himself, he endorses it over to his banker.) When this method of settlement is used the creditor turns the draft over to his banker and gets credit for the proceeds, whereupon the banker sets out to collect from the drawee through banking correspondents.

3. The Rate of Exchange.

Another matter of much importance in connection with credit-exchange is the **rate of exchange,** particularly the rate in foreign exchange. As we have just learned, money payments between the people of different communities are effected through agents in each community who assume the position of common creditor and common debtor for that community. In other words, these persons buy up money claims on other communities from any persons having such claims to dispose of, and sell money claims on other communities to any persons who may need them to make payments in those other communities. Thus, there is developed a traffic in such money claims—a traffic in "exchange," as such money claims are commonly named. The price at which exchange sells—at least in the case of exchange between different countries—is called *the rate of exchange.* Stated more formally: *the rate of exchange is the price in one country paid in the money of that country for the right to dispose of a unit of the money of some other country in that other country,* or at least in some country other than the one in which the purchase is made. Thus, if I wish to buy from my bank the right to have five pounds sterling paid on my behalf in London, and find myself obliged to pay for that right $4.87 per pound, I say that the rate of exchange on London is $4.87.

In domestic exchange, i.e., exchange between different parts of the same country, the rate of exchange usually means the *difference* between the face value of an instrument of exchange and what is paid for it. Thus, if I say that the Chicago rate of exchange on New York is 15 cents premium per thousand, I mean that, in selling a claim for $1,000 on New York, a Chicago dealer would get his $1,000 and fifteen cents extra.

In working out the price or rate of exchange, the market naturally starts with the *natural* value of the unit of the money wanted, as measured in the money with which it is bought—i.e., the value of the money wanted as it would be if there were no

difference of place, if the buyer of English money bought it right in New York to be delivered in New York. If the two countries have the same standard, say gold, then the natural value of either money in terms of the other can be ascertained by a simple operation in division. Thus, one dollar contains 23.22 grains of fine gold; and the English pound, 113 grains. The pound, therefore, is naturally worth in our money as many dollars as 23.22 is contained in 113, i.e., $4.866. This natural price of a foreign money unit, measured in terms of the home money, is technically known as *the par of exchange.*

The rate of exchange varies above or below the par of exchange according as the demand for exchange at par is in excess of the supply or *vice versa.* If we are selling great quantities of cotton, wheat, etc., to the people of Europe and buying comparatively little from them, then claims on Europe will be abundant and, other things being equal, cheap. That is, those of us who have claims on Europe to sell will be obliged to sell them cheap, while those of us that need to buy such claims can get them cheap. On the other hand, if we are buying many goods from the people of Europe and selling them comparatively few, then claims on Europe will be scarce and, other things being equal, dear. That is, those of us who have claims on Europe to sell can get high prices, while those who need to buy such claims will have to pay high prices.

These variations of the rate of exchange above and below par are *limited by the cost to exchange houses of transporting the money ieself from the one place to the other,*—it being understood that cost includes a profit to the exchange dealer. The variations from par can not be greater than this, because any wider range would give exceptional profit to the exchange dealers, which would stimulate their competition, and so reduce the difference to this amount. In the case of London exchange, the possible variation from par is commonly in the neighborhood of three cents, i.e., the rate ranges from about $4.835 to $4.895.

4. The Commercial Bank.

In the preceding discussion of credit-exchange it has been necessary to make repeated mention of banks, because of the large part in the conduct of credit-exchange which is played by these institutions. The particular type of bank here involved

—the bank in the strict sense as understood by English and American writers—may be described, in general, as an institution which acts as common treasurer or fiscal agent for such part of the general public as choose to patronize it. As such common treasurer, it cares for the money of its patrons, makes and receives payments on their behalf, makes advances of money to them, etc. Its functions, more formally enumerated, are as follows:

(1) Receiving *deposits of current funds*—funds which the depositor expects to employ in his current business—active funds. (Commercial banks, to a greater or less extent, get deposits of *idle* funds; but this is not their distinctive business. Such funds more naturally go to savings banks.)

(2) *Discount.* Making short time money loans to patrons on the discount plan.

(3) *Check-exchange.* Honoring the checks drawn by depositors and accepting for credit or payment checks drawn in favor of depositors.

(4) *Exchange.* Buying and selling rights to claim money in other places.

In addition to these, the most characteristic functions of banks, banks also *collect* debts for their patrons in outside places. Still again, one or more banks in most countries make a business of *issuing circulating notes.* Finally, many banks do more or less business in the way of safety-deposit.

Illustrative Problems.

1. Suppose that you send a check on the National Bank of Ann Arbor to the Newcomb-Endicott Company of Detroit to pay for some goods purchased; and suppose that when the check finally gets back to you it shows the following endorsements: (1) Pay to the Peninsular Savings Bank of Detroit, the Newcomb-Endicott Company. (2) Pay to the State Savings Bank of Ann Arbor, Peninsular Savings Bank of Detroit. (3) Paid through the Clearing House, State Savings Bank of Ann Arbor. Trace the course of this check from the endorsements.

2. Henry T. Crouch of Erie buys $1,275 worth of wheat from T. C. Craig of Detroit.

(a) Suppose settlement to be effected with a wheat bill of exchange (also called a sight draft) and write out the substance of the bill which would be used.

(b) Suppose settlement to be made with a check and write out a facsimile (in substance).

(c) Suppose settlement to be made with a bank draft and write out a facsimile (in substance).

3. Whichever method of settling the transaction involved in the last problem is used, the particular credit document employed will inevitably take quite a journey from bank to bank while it is being collected.

(a) Describe an imaginary course which it would very likely take if it were a sight bill of exchange.

(b) Same, if it were a check.

(c) Same, if it were a bank draft. (Compare Problem 1.)

4. We buy a good deal from Brazil, but sell her little. We sell a great deal to Great Britain, but buy from her much less. Can you imagine a way in which one of these trades furnishes a medium of exchange for the other?

5. Oct. 1, 1907, the different banks of Ann Arbor brought to the clearing claims against each of the other banks as follows:

No. 1 against		*No. 2 against*		*No. 3 against*	
No. 2	$2213.19	No. 1	$4284.78	No. 1	$4974.66
No. 3	1865.09	No. 3	2172.45	No. 2	1607.79
No. 4	2415.96	No. 4	3043.18	No. 4	1093.24
No. 5	512.21	No. 5	655.87	No. 5	625.88
Total	$7006.45	Total	$10156.28	Total	$8301.57

No. 4 against		*No. 5 against*	
No. 1	$3078.73	No. 1	$332.15
No. 2	1793.16	No. 2	377.17
No. 3	973.73	No. 3	1515.46
No. 5	4633.96	No. 4	181.56
Total	$10479.58	Total	$2406.34

Compute the balance for or against each bank.

6. Supposing all the claims of the Ann Arbor banks on one another which appear in the last problem to have consisted of checks which were used in the regular course of business transactions;

(a) What must have been the total volume, expressed in money, of the transactions thus effected?

(b) How much actual cash was needed to effect these transactions?

(c) What per cent of the total volume of transactions did this cash amount to?

(d) What is the significance of these facts?

7. Not many years ago it was estimated that the *per capita* money circulation of England was about $11 while that of France was about $51; yet, as every one knows, there was at least as much business *per capita* carried on in England as in France. How could the difference in the amounts of circulating medium required be explained?

8. Some writers represent the development of credit-exchange as a return to barter. Show that this is not true—that

credit-exchange is still *mediated* exchange, nay more, that it is *money* exchange.

9. Suppose I wish to buy a bank draft for £200 on London. With London exchange at $4.855, what should I be able to get the draft for?

10. A wheat exporter of New York draws a bill on his London customer for £1375. What should he be able to get for this bill with London exchange selling at $4.87? with London exchange at $4.84?

11. Suppose that a New York importer can get 50 gross of Sheffield razors delivered in New York for 44 pence each (the duty included), and that he can sell them for 95 cents each. What would be his profit on such a transaction if the rate of exchange on London were $4.84? if the rate were $4.87?

12. From the last two problems what principles can you deduce as to the effect which a high or low rate of exchange tends to have on exports? on imports?

13. "The greater part of our circulating medium consists, not of money, but of deposit currency." Explain what is meant by deposit currency.

14. Near what point would you expect the rate of exchange on Europe to be found in the fall of the year? Why?

15. "A matter very frequently overlooked by the public is that a large share of the bank deposits of a country like the United States grow out of loans and so do not add to the cash holdings of the banks." Explain how this is so.

16. When exchange on London is at $4.895 or thereabouts, it is said to be at the upper *gold point;* and when in the neighborhood of $4.835, it is said to be at the lower *gold point.* Why are these called gold points?

CHAPTER VI.

SOME ELEMENTARY PROPOSITIONS WITH RESPECT TO MONEY.

It is much too early in our study of economic principles to attempt anything resembling a thorough treatment of the theory of money. Nevertheless, it is important to set forth at the very outset of our work some propositions bearing on this topic which, though little more than truisms, are yet frequently overlooked by the public, with the result that foolish errors gain acceptance and lead to hurtful legislation.

1. Money is simply one particular kind among many kinds of wealth.

For a variety of reasons, we very naturally look on money as wealth *par excellence.* Thus, money, being the kind of wealth which will procure for us all other kinds, naturally presents itself to us as the most efficient, and so the most desirable, form of wealth. For the same reason, it is readily conceived as the *typical, representative,* form of wealth, the one which stands for all others. Again, money being the conventional measure of value, we very naturally *express* wealth in terms in money. For example, we say that "Smith has inherited a half million of dollars," meaning that he has inherited wealth of various kinds *valued* at a half million dollars. But, while these facts make it natural for us to look on money as wealth *par excellence,* they surely do not justify us in conceiving money to be the only form of wealth. Nevertheless, in earlier centuries whole communities have *seemed* at least to entertain such an idea; and, even in our own day, a few people come dangerously close to taking the same position. It seems best, therefore, to give as our first proposition in the theory of money the correct doctrine on this matter.

2. Money is simply one among many kinds of capital (capital goods), i.e., products which are wanted, not for their own sakes, but for the sake of other things which we can get through

them; and, relatively, money forms a rather small portion of the total capital of the community.

Money as an instrument which is employed by people to facilitate the exchange of goods, to accumulate stores of capital, to transfer values, etc., is of course capital, just as truly as are buildings, engines, machinery, etc. But there are many people whom this degree of recognition for money does not satisfy. Just as certain peculiarities about this institution mislead careless persons into thinking of it as the only true *wealth,* so these, or other, peculiarities lead many persons to think and talk as if money were the only true *capital.* Perhaps the peculiarities which most strongly work for this result are the following: (1) the *immediate form* in which capital is *accumulated* is commonly money or bank credit, and (2) all forms of capital, like all forms of wealth in general, are computed, expressed, in terms of money; e.g., we say that Mr. Craig has $200,000 of capital in the milling business, meaning that he has buildings, a dam, races, machinery, etc., devoted to producing flour, *which have a value measured in money* of $200,000.

That the second peculiarity named does not justify us in conceiving money to be the only true form of capital is too evident to need argument, though it will be a long time before the business world rids itself of the notion that somehow the money which *buys* the buildings, machinery, etc., is the *real* capital rather than the buildings, etc., themselves.

The other fact which tends to make people look on money as the only true form of capital—that it is *the form in which most capital is accumulated*—seems to make the error somewhat more plausible, since all (nearly all) capital is sometime or other in this embodiment. But, really, the case is no better than before. The money stage of capital is only a momentary one,—only a transition form. Still more, it is only the *representative* form of capital, the shadow or image not the substance. While the capitalist is accumulating stores of money or bank credit, other men are manufacturing lumber, engines, machines, etc., *practically, if not literally, to the order of our capitalist;* and these other things for which the capitalist, or some one who borrows his money, exchanges his store of money or bank credit, constitute in the main the *real, final, form of capital.*

3. Money is simply one particular kind of useful instrument

of which our stock should be large enough to do the money work needing to be done as well as we can afford to have it done, but of which we do not want more than enough any more than we want more than enough of chairs, clothes, stoves, engines, or any other useful article.

Every time we spend any of our resources producing chairs we have so much less resources for producing food, fuel, clothes, etc. If we are sensible, therefore, we will stop producing chairs just as soon as our need for chairs is satisfied as fully as we can afford to have it satisfied, in view of our need for food, clothes, etc. The case of money is no different. We want our need for money satisfied to the same degree as our other needs; but we do not want, and can not afford, anything more than this.

4. Broadly speaking, it is of the very nature of money to circulate (in person or by proxy), that is, to pass from one person to another in purchase of goods or to be held awaiting the occasion for such use.

This proposition when understood must present itself to our minds as a mere truism. But various widely accepted fallacies indicate that it is constantly overlooked. "Putting money into circulation" is, with very many minds, an action so advantageous to society that it covers a multitude of sins against the general welfare. Thus, a government may be wasting the substance of an industrious people, carrying on a foolish and costly war. When economists complain, some one promptly answers that it is good for trade because it "puts money in circulation." Of course, the answer is easy. The money would be in circulation anyhow. That is its business. If the government did not take it from the owners by taxation or borrowing, those owners would themselves be spending it on the good things of life, or on engines, machinery, mills, and other forms of capital.

5. Broadly speaking, it is of the very nature of money to remain money—not to be consumed in the sense of being finally absorbed into the life of any individual. It follows that the fact that the stock of money is unchanged proves nothing as to how the amount of wealth or capital is affected by particular lines of conduct.

This, again, is a truism which needs only to be understood to be accepted and yet is constantly overlooked by many people.

If we complain of the foolish squandering of a great capital by a worthless heir, people at once say: "I don't see that any harm is done. The money spent by the foolish heir is still here. It has only been transferred to better hands." Of course the money is here. Money is nothing but a counter, a check so to speak calling for goods, a shuttle of exchange flying back and forth, helping different producers to effect the exchanging of their goods. But, while the money is here just as it would have been anyhow, something else is not here that would have been, had the foolish son followed in the steps of his father. That something is productive goods, engines, cars, bridges, shops,—something which would continue for years to give off uses, and which could have been produced by the same labor which was expended in ministering to the young man's follies. Society as a whole is vastly poorer than it would have been, though the quantity of money is just the same.

6. It is of the very nature of money to go back and forth between communities, to move like a shuttle out and in; trade with the outside world does not of itself tend to take away our money.

The world outside our city or country wants our money in exchange for their goods (assuming that they *do* really demand it), not to keep for eating or wearing or warming houses or any other use which involves retaining possession of it, but *to send it back to purchase our goods.*

ILLUSTRATIVE PROBLEMS.

1. "Foreign trade can add to the national wealth only when it brings in a money balance."

(a) What is the principal thing to be gained by maintaining trade relations with the outside world?

(b) When would it be of advantage to have our foreign trade bring in a money balance?

2. "A nation is so much poorer by every dollar it sends out, just as an individual is so much poorer by every dollar he spends." Criticise both clauses.

3. "Everything we buy abroad takes just so much money out of the country."

Show that this can not be true whether it is meant that such buying abroad takes the money out *immediately or* only *ultimately.*

4. Suppose that official reports from all the banks of a certain city show that, on an average, 93 per cent of the de-

posits received during a certain day consisted of checks, only 7 per cent being in the form of money. What important fact with respect to the conduct of business in that city would be thereby disclosed?

5. "It is sometimes asked whether the raising of a government loan to cover ordinary expenditures really causes capital to be lost, since the coins received by the government remain in existence,—even remain in the country. *This objection has no weight whatever.*"—Pierson's Principles of Economics. Show that the statement in italics is correct.

6. "We pay 110 million dollars per annum for the carrying of products between this and foreign countries. Think of it. One hundred and ten million dollars in gold coin has gone out of the commerce of this country into the commerce of other countries. Can New York stand this?"—James G. Blaine in 1881.

(a) Is it likely that we permanently lost 110 million dollars in gold from our circulation because we hired foreigners to carry our goods?

(b) Is it likely that we even temporarily parted with that much gold on that account?

(c) Is it likely that as a nation we should have been richer if we had done this carrying of products for ourselves?

7. "I don't see that society as a whole loses anything by the giving of a fireworks exhibition costing $1,000. Of course the people who pay for the fireworks are just so much out. But then the $1,000 goes to the other people who furnish the fireworks; so that society as a whole comes out even." Criticise.

8. Bills drawn against these heavy shipments (of cotton) flooded the foreign exchange market this week (Nov. 19, 1903), depressing it to the lowest level since Nov., 1900."

According to popular ideas, what result ought to have followed the heavy shipments of cotton referred to?

9. "My numerous armies promote the circulation of money, and disburse impartially among the provinces the taxes paid by the people of the state."—Frederick the Great justifying his wars in a letter to D'Alembert. (Quoted from Bullock.)

Was there anything in the facts stated to offset the sacrifices undergone by the people in paying the taxes?

10. "The summer boarders are a great blessing to our little village; because they put into circulation a lot of money, which means at least temporary prosperity."

What must we understand this phrase, "put into circulation money" to mean, if we accept the above as anything like an adequate explanation of the prosperity brought by the summer boarders?

11. "The individual can get rich only by selling more than he

buys and saving the surplus in the form of money or bank-credit. So a country can increase its wealth only by exporting more than it imports, and taking the difference in money."

Discuss both parts.

12. "I am not convinced of the soundness of the orthodox doctrine that a country can have all the money it wants and needs, just as it can have all the engines, machinery, etc., which it wants. Money is very different from other things. It would be easy to give a man all the food and clothes he wants; but, however much money you offered him, he would take it all gladly."

Criticise.

13. From a Salt Lake supporter of the "Seeing America" movement: "We recognize that Americans are annually spending $200,000,000 in foreign travel. That practically every dollar of this vast sum is lost to the home circulation can not be disputed."

Criticise the last sentence.

CHAPTER VII.

CERTAIN FUNDAMENTAL PRINCIPLES OF TRADE.

The preceding chapter brought out certain elementary propositions with respect to money which, though little more than truisms, are yet often overlooked and so need to be remarked upon. For trade or exchange in general, there are similar elementary propositions—perhaps a little more removed from the status of truisms though certainly simple enough—which are also constantly overlooked and so deserve comment. The most fundamental one of these has already been given on page 18 in the principle that the chief function of exchange is to make co-operation and specialization possible. We must now add two others scarcely less fundamental or important.

Section I. **Say's Law.**

The first of these principles has to do with the conditions which determine the *total demand for goods.* Demand, as understood by the economist, means the quantity of any goods which buyers actually stand ready to take, as conditions are, including the existing price. Demand in this sense obviously implies the existence of *desire* on the part of buyers, coupled with *power to buy,*—control of some adequate equivalent to be exchanged for the thing purchased. Now, it is plain that every producer will naturally be anxious to see the demand for his particular product become as large as possible. In order to promote this desirable result, he probably tries to make his product particularly good,—anyhow expends much effort seeking to convince buyers of its goodness. But he is seldom content with this. He wishes to enlist the conscious support of his neighbors and fellow citizens acting in their personal capacity or through public legislation. For example, he tries to get the rich in the way of *spending their money liberally,* or he urges the government to *raise money by taxation and undertake expensive improvements.* But it is manifest that, in order to enlist the support of producers generally in any scheme which

a particular producer may propose for helping matters, he must be able to show that said scheme will be of advantage to others as well as to himself. The usual way of doing this is to argue that the proposed scheme will increase *demand for goods in general.* Hence there arise even under primitive trade conditions various doctrines as to how general demand—total demand—is determined. These doctrines are nearly all erroneous; so that a presentation of sound principles is of much importance.

Principle. Say's Law. The Ultimate Identity of Demand and Product.

In the last analysis, the demand for goods produced for the market consists of goods produced for the market, i.e., the same goods are at once the demand for goods and the supply of goods; so that, if we can assume that producers have directed production in true accord with one another's wants, total demand must in the long run coincide with the total product or output of goods produced for the market.

Proof: First Hypothesis—Trade takes the form of barter.

(1) Demand *cannot include anything outside* of product—output; for no one can demand goods except by offering other goods in exchange, and such goods must have been produced.

(2) Demand *must include all* of the goods produced for the market; for such goods will surely be offered in exchange, else they would not have been produced, and, *in being offered in exchange,* they constitute each a demand for other goods.

(3) But, if demand can not include anything outside of products and must include all of these, then demand and products must coincide.

Second Hypothesis—Trade carried on with money.

Here demand is *immediately* determined by the amount of money controlled by buyers. But, obviously, buyers can get money only by *producing* it or by getting it in exchange for something else which has been *produced.* That is, in the last analysis, in money-exchange as in barter-exchange, the things really exchanged are *products;* so that the case of money-exchange is, from our present point of view, substantially the same as that of barter-exchange, and therefore is covered under the preceding hypothesis.

Notes: (1) The proviso which appears in the second clause of the principle,—"assuming that all producers direct their production in true accord with one another's wants"—is necessary;

since, if any producer should find that the particular goods he wanted were not offered for sale, he might decide to leave the exchange operation half completed,—selling his goods for money or credit but *not* using that money or credit to buy other goods.

(2) This last must not be understood to imply that exchange is never complete unless the money received for goods sold is in turn used to buy other goods. In a few cases, the money which the seller gets for his goods is the ultimate thing he wants. For example, he may wish to get gold to use in making jewelry and may choose to do this by melting coins; or he may have a fad for collecting gold coin just as another man might collect old pictures; and so on.

Illustrative Problems.

1. "The destruction of property has one compensation in that it increases the demand for commodities or services and so makes trade good."

Explain the fallacy. (See Reading XII, C.)

2. "George Rankin is of course a big fool to spend $400 making a mill dam in a creek which is dried up every summer and never has enough water to run an ice cream freezer; but he is doing one good thing,—he is making a whole lot more demand for labor and so a lot more employment for laborers."

Explain fallacy.

3. "There is just so much work to be done. The entrance of women and children into the field of labor must drive out an equal amount of adult male labor."

Criticise. (There are no doubt objections of real weight to the extension of child and female labor; but this is not one of them.)

4. "The real cause of the present standstill in trade is the inequality of incomes. There can be no effective demand, because those who have the money to buy have no unsatisfied wants, while those who have the wants have no power to buy."

Criticise.

5. In a certain part of a recent novel, Mr. Blossom, a young painter and decorator, is trying to induce Miss Cynthia to give him a job re-decorating her house, which is somewhat behind the times in this respect. The latter part of the conversation on the matter is as follows:

"'Live and let live' is a good enough motto for me."

"'Live and let live,'" repeated Miss Cynthia, thoughtfully. "What do you think that means?"

"Why, it's plain enough," said Mr. Blossom, strongly. "You're living all right, ain't you? Got enough of everything and something to spare . . . ; but you've got to let other folks live. . . . If there's anything you want done that you can't do for yourself, hire somebody that can do it . . . , so they can live, too. If everybody did that right along, I

guess there wouldn't be so much talk about labor unions and strikes and all that sort of thing."

(a) Would Miss Cynthia's deciding to spend and actually spending $600 to re-decorate her house increase the employment of laborers generally?

(b) Why can we be certain that everybody is now doing the thing which Mr. Blossom thinks they ought to be doing?

6. Street comment on a cold snap which bursts numerous water-pipes: "Hard on householders, sure enough; but no great loss without some small gain. It's a bonanza for Ann Arbor plumbers." Is that sound?

7. Mr. A, having earned and saved $10,000, buries it in the ground. Another, having earned and saved $10,000, spends it on a great banquet. Which makes the greater demand for products?

Explain.

8. Would we naturally expect events like the San Francisco earthquake and fire to increase the demand for labor in general?

Explain.

9. "It is of course natural and, from the standpoint of certain individuals immediately interested, desirable that the members of the Methodist Church or the Baptist Church or any other such like organization should give their custom to dealers who are members of their own organization. But, from the general economic standpoint, the presumption is against the desirableness of all such interference with the natural working of things."

Give some reasons for this opinion.

10. "Economically it is for the interest of every class of producers to see the efficiency of other classes of producers increase."

Why?

11. During the last fifteen years, the Western nations have laid much stress on making and keeping the Chinese trade open to all; and not a few have anticipated from the policy a great expansion in the market for our products. Show that Say's law suggests a reason for looking on such anticipations as rather ill-founded.

12. "Every true friend of labor must condemn without reserve all prison systems which devote convict labor to the production of goods for the market. Every such system must, in the nature of the case, increase the supply of commodities without increasing the demand, and so must diminish the employment available for honest laborers who keep out of prison."

Show in detail (not by citing the principle) that the *demand* for goods is increased by convict labor as much as the supply.

13. "The extraordinary advance in industrial technique

characteristic of the last half century has so increased our productive capacity that, when things are running smoothly, output is bound, sooner or later, to exceed demand, which condition of things invariably leads to a commercial crisis followed by a general collapse of industry."

Criticise.

14. "The true way to insure industry against general overproduction is to raise the rate of wages all along the line, thus increasing the buying power of the masses and therefore causing consumption to overtake production."

Criticise.

15. The Chicago Record-Herald for April 18, 1908, contained the report of an interview with the head of one of America's great universities, wherein various opinions and statements were attributed to King Haakon of Norway. Among these was the following: "I could black my own boots if I wished to; I have done it and therefore know how; but if I did, what would become of the people who make a living blacking boots?"

Criticise on the basis of Say's law.

Section II. **The Principle of Reciprocity.**

If a man were told that he could get no good out of trade with his fellows *unless he bought as well as sold,*—that trade, as respects individuals anyhow, is necessarily *reciprocal,*—he would perhaps be quite impatient at being taken for a person so stupid as to need instruction in such truisms. But, when any question of *trade between communities* arises, this very same man will probably show himself quite oblivious to the principle which seems so evident in domestic trade. Thus, he will very likely consider it entirely possible, as well as highly desirable, to increase the volume of goods *sold* to other countries while leaving stationary the quantity *bought.* Or he will bemoan the importation of goods from outside as *decreasing demand for home goods,* quite overlooking the fact that the goods imported must be paid for with others exported and therefore must mean an increased outside demand for home goods. It is therefore necessary for us to set forth in quite definite and formal shape the almost self-evident truth that trade between communities, as well as between individuals, must be reciprocal.

Principle. The Principle of Reciprocity.

Exchange between communities, as between individuals, is necessarily reciprocal; and, speaking broadly, the total of goods (not including money) sold by any community to all other communities must in the long run equal the total of goods (not in-

cluding money) bought by that community from all others, save that there will usually tend to be a slight excess of goods exports from communities not producing standard money metal and a more or less considerable excess of goods imports into a country producing standard money metal,—it being assumed that the distribution of population among different communities remains substantially unchanged during the period under consideration.

Comments: (1) The meaning of the principle is most easily brought out by applications. In introducing the discussion, we inevitably suggested some of these. Thus, the principle is intended to tell us that no one can reasonably hope to increase the volume of goods *sold* by his community without also increasing the volume *bought*, and *vice versa*. So, it can not reasonably be charged that by buying goods outside we lower the demand for home goods and so the opportunities for employment at home; for the goods bought outside must be paid for by goods produced at home, which means employment producing them. Again, it is not reasonable to fear that buying outside will cause an export of our money—unless we are producers of money metal; for, supposing the quantity of money to be constant, *goods* exports and *goods* imports must tend to be equal.

(2) The student should note that the Principle of Reciprocity does not tell us that the goods sold by the people of one country to the people of another country must equal the goods bought by the former *from the latter*. It only says that the goods *sold to all* countries must equal the goods *bought from all* countries. Taking our stand with any one nation, all *its* exports must equal all *its* imports.

(3) The Principle of Reciprocity must not be understood as teaching that the exports of a country *as reported by the customs authorities* must equal the imports as reported by the same authorities. In fact, these two sums are rarely if ever equal, though the total products sold—exports—must substantially always be equal to the total products bought—imports. The explanation of this seeming paradox is easy. Customs reports do not, and can not, show *all* exports and imports. Thus, the true imports of a country obviously include *everything* bought by its people from the people of other countries. But *some* of these things bought from other countries can not, or at least do not, come to the knowledge of government officials. Of these the most important are (1) goods and services bought from the foreigner in his own country, e.g., by our people traveling there, and (2) *services* bought from the foreigner and delivered in our own country, but not appearing in import lists because *as services* they do not go through the custom house. In short, there are *invisible*, as well as visible, imports; and it is the sum of both of these which must be equal to the total of exports. What

has been said of imports applies of course to exports. Of these some are visible, some invisible; and it is their sum which must equal the total imports.

Accordingly, if we wish to get a correct balance sheet of the exports and imports of a country; we must add to the figures furnished us by the customs officials, figures from other sources —mostly mere estimates—taking into account these invisible exports and imports. Thus, if it is true, as some say, that we get transportation done for us by other nations to the value of $200,000,000 per year, we must enter on the *import* side of the balance sheet an item like this:

Services of carriers.....$200,000,000

So, if it is true that we use capital borrowed from other countries to an amount which calls for $120,000,000 of interest per year, then we must enter on the import side this item:

Services of Borrowed Capital $120,000,000

or, in the more usual form:

Interest on Borrowed Capital.....$120,000,000

I hardly need add that the countries *selling* us these services would have to make similar entries on the *export* side of their balance sheets. (See Reading XIV.)

(4) It perhaps ought to be remarked that the Principle of Reciprocity above laid down should not be confused with the *policy* of reciprocity much advocated and occasionally practiced in this country. The latter, as indicated, is a *policy* in the conduct of a nation's commercial relations, not a natural law governing phenomena. Further, as a policy, reciprocity has its chief theoretic basis in alleged natural laws which are quite inconsistent with the Principle of Reciprocity. Most advocates of the policy of reciprocity are more or less pronounced disbelievers in the Principle of Reciprocity.

Argument for the Principle.

A. The total exports—*including money*—must equal in value the total imports, assuming that no one is cheated. This is surely self-evident.

B. If we suppose that this necessary equality of exports and imports is not secured by the equality of *goods* exports and imports affirmed in the principle, then it must be secured by a net export or import of *money*. Now, the money involved in such a movement of money, say an export, might be (a) some part of a *new* output of money metal from a country producing such metal, e.g., Australia or the United States, or (b) a portion of the stock of money already in use in the exporting country. But

the first case is provided for in the principle before us. It only remains, then, to show that, in the long run, the equality of exports and imports, which is obviously necessary, will not be—can not be—secured by export or import from the existing money stock. If we increase our import of goods, we must, broadly speaking, increase our export of *goods,* not our export of money; and *vice versa.*

(1) It seems *almost* justifiable to say that this statement is self-evident. A community could not for long pay for an excess of imports by drawing on its stock of money; since that stock would sooner or later become completely exhausted and so trade would have to cease.

(2) But the objector would probably declare that this exhaustion of the money stock is just what he fears, and its appearance, together with the consequent cessation of trade, would decisively disprove the Reciprocity doctrine. It, therefore, is necessary to show that there is no danger of exhausting the money stock through trade or even of drawing it down to unduly small proportions.

(a) In the first place, under normal conditions, international trade is *mediated through credit* rather than through money, and, under the natural working of the principles of credit exchange, goods exports and goods imports tend to be made equal *automatically.* The first part of this statement hardly needs comment. We have noted earlier that the exporter takes his pay in the shape of a credit on other countries and that these credits, getting into the hands of exchange dealers, are as far as possible cancelled and only balances paid in money. Such has always been the practice and, for manifest reasons of convenience, always will be. The second part of the statement, if less familiar, is no less true. Under the natural working of credit exchange, exports and imports tend to be made equal *automatically;* the balances which have to be paid in money tend to disappear or to reach a neglible minimum. How this comes about is easily shown.

As we have already seen, the medium of exchange in foreign trade is credit; and, in the working of this system, foreign credit—exchange—is bought and sold and so has a price known as the rate of exchange. This price will be high in any given country if importing into that country is excessive and exporting deficient, since this will make the demand for such exchange

great and the supply small; while, under the opposite conditions, the price of exchange will be low. But a high price for exchange will make exporting more, and importing less, profitable than usual, while a low price for exchange will make exporting less, and importing more, profitable than usual. That is, a high rate of exchange will stimulate exports and discourage imports, while a low rate will have an opposite effect. But it was excess of imports which caused a high exchange rate; hence excess of imports will tend automatically to increase exports and diminish imports. So, it was excess of exports which made the exchange rate low;—hence excess of exports will tend automatically to increase imports and diminish exports. And obviously these tendencies will persist in greater or less power until exports and imports become equal. *So long as either buying from outsiders or selling to outsiders is in excess of the other, a rate of exchange is bound to obtain which discourages the side of trade which is in excess and stimulates its opposite, with the result that the excess must progressively diminish and finally disappear.* (See Reading XVI, B.)

(b) The preceding argument has shown that international trade is normally carried on without the use of money and tends automatically to balance itself without the intervention of money. To lay finally the ghost that foreign trade will drain away our stock of money—to make clear that the necessary equality of exports and imports can not, under normal conditions, be secured by exporting our stock of money but must be brought about through increasing the export of goods—to do this we need to show that *any drain from the normal money stock of a country tends to be checked automatically.* The demonstration is not difficult.

In the first place, practically all the money which is exported from any country in the course of trade is taken from the bank reserves of the chief commercial and banking center,—in our case New York, in that of England London, and so on. The explanation of this strict localization of a money drain has already been more or less fully anticipated. Trade with outside people is, as we remember, almost entirely carried on with credit; and the international claims thus created get into the hands of a few exchange houses in the different countries, are as far as possible cancelled, and the balances either way paid in money. But quite inevitably this dealing in, and settling of, international

credits is mostly confined to the chief commercial center where the large volume of transactions develop the most efficient and least expensive processes of settlement. The exchange houses of this commercial center of course keep accounts with the banks of that center, or are themselves engaged in a regular banking business. In either case, the money which they send out will be taken from the banking reserves of the commercial center and, more especially, from that portion of the reserve known as the *surplus* reserve, i.e., the portion which is in excess of the amount which banks are by law *required* to keep; since this portion only is so free as to be fully available.

It being recognized that a money export is inevitably taken from the banking reserve of the chief commercial and banking center, a long step has been taken toward our goal; for the banking reserve in question occupies a very significant place, and any considerable change in its volume is likely to bring about marked results. First, it is, in a very important sense, the reserve, not only of the city where it is located, but also of the country at large; for the banks of other cities keep from one-half to three-fifths of their reserve in the central city banks. Secondly, the reserve of the central city is, in the natural working of things, kept down to the lowest possible amount,—in other words, the money funds of the center are kept employed to the limit of safety. This results from the large number and scale of transactions, the enormous amount of speculation, the stupendous projects which have to be financed—provided with ready money—at this center, and so on. This excessive utilization of the banking funds of the central city results in keeping down the surplus or free reserve to a very low point, say, from five to twenty millions. If business and speculation are very active, this surplus reserve is even likely to disappear altogether and be turned into a deficit. As a result of these peculiarities of the central city reserve, changes in its amount are of great significance, and are carefully, even anxiously, watched by the business community both of the central city and of the country at large. In particular, this central reserve has quite exceptional significance in that changes in its volume quickly lead to opposite changes in the rate of discount, i.e., the rate of interest paid on bank loans;—a change of a few millions in the bank reserve sometimes causing the rate on call loans to jump from two or three per cent to five or ten or fifteen.

We are now prepared to show how a drain of money from the country tends to check itself. That result is accomplished through one or more of several series of reactions started by the outflow of money itself. The first series of reactions, and the one which works most promptly, is as follows: the outflow of money lowers the central city reserve to an abnormal point; this raises the rate of discount; the central city becomes a more than usually profitable place for the investment of capital; this leads foreign creditors to decide to leave their money capital here for investment rather than having it sent to them; and so the outward movement of money tends to be checked.

If this first series of reactions fails to accomplish the result, there are still a second and third to come in. The second runs as follows: the outflow lowers the central reserve; this raises the rate of discount; a fall takes place in the price of securities and of the great staples—such as wheat, cotton, etc;* this fall in prices stimulates foreign buying of these securities and staples; and such buying tends to turn the balance of international credit in our favor and so to stop the outflow of money or even to cause an inflow.

In extreme cases, a still more powerful series of reactions may be set in operation. The outflow of money may go so far as to cause a serious deficiency of money for the purposes of general trade; this would tend to bring about a general fall of prices; foreign buying of all sorts of export goods would be powerfully stimulated; and the favorable balance of credit quickly resulting would surely stop any money outflow.

Summarizing the discussion, it is plain that any considerable drain of the ordinary money stock of a country tends automatically to check itself; that, consequently, the necessary equality of exports and imports can not in the long run be secured by movements of money, save in so far as these are movements of new stocks of money metal; and, therefore, goods exports and goods imports must, broadly speaking, be equal.

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*This grows out of the fact that there is a vast amount of speculative trading in these securities and staples and the further fact that this trading is largely based on borrowed capital. As a result, a high rate of discount hinders people from buying as freely as otherwise and even drives them to sell their present holdings,—either of which procedures tends to lower prices.

ILLUSTRATIVE PROBLEMS.

1. "Another important reason for keeping our fleets as far as possible in our own ports is that under this policy the money they spend for ordinary supplies goes to our own people."
Explain what the writer probably meant and criticise it.

2. "To the same extent that the home market is wrested from foreigners and given to protected home producers, the foreign market is wrested from unprotected home producers."—Seager, p. 381.
Explain and defend the statement.

3. "When I came to Marblehead they had their houses built by country workmen, and their clothes made out of town, and supplied themselves with beef and pork from Boston, *which drained the town of its money.*"—Barnard's Autobiography.
Criticise the part in italics.

4. From a suppositious editorial of a Benton Harbor newspaper: "The annual influx of students and other outsiders into the fruit belt to engage in fruit picking and packing is an abuse which should be stopped at once. These people consume very little, saving their money to take back to Ann Arbor, Chicago, and the other places from which they came. Thus, while making large sums off us, they give little or nothing to the support of our industries."
Criticise.

5. "One reason for our almost constant excess of exports is that we are enterprising and so are always opening up new markets."
Objector. "Opening up new markets might increase our exports but could not increase our *excess* of exports unless somebody cheated us,—seeing that our country is one of the chief producers of gold."
(a) Argue for the correctness of the second quotation.
(b) Why was the phrase from the dash, added?

6. Remarks of a leading Congressman when it was announced that the Canal Commission would purchase supplies wherever they could be secured most cheaply. "The President should be able to see the desirability of purchasing the supplies in this country alone, because thus employment would be given to *American* capital and labor instead of foreign."
Explain fallacy.

7. The chief reason for our excess of exports is to be found in the fact that the things which we sell are more necessary to our neighbors than the things which they sell are to us."
Criticise.

8. "The true way to quicken foreign demand (for British goods) was to open the ports to that foreign supply with which

they paid us for what they bought from us."—Morley's Gladstone, vol. I, p. 267.

Show that the above is sound doctrine.

9. "If we buy rails from England, we get the rails of course, but they get our money; while, if we buy the rails at home, we have the rails and the money too."

(a) Is there any reason to expect that our buying rails in England would carry off our regular stock of money? Explain.

(b) Substitute "cotton" for "money" throughout the above quotation and show the fallaciousness of the doctrine.

10. "The reason of high exchange is the buying much commodities in any foreign country beyond the value of what that country takes of ours."—John Locke.

Show that Locke's statement does not fully cover the case.

11. "The trade of the United States shows an excess of exports, because it is a large resourceful country which has to supply other countries with raw materials."

Criticise.

12. "I have always believed that free trade would secure the greatest general prosperity, provided that all countries would practice it. But, if neighboring countries are bound to maintain protection, it is only fair to ourselves to do the same."

(a) What is the real economic evil of having our neighbors shut out our goods?

(b) Would we better matters by shutting out theirs?

13. A Detroit physician who has a son in the University at Ann Arbor requires the latter to buy his clothes and other supplies just as far as possible in Detroit, on the ground that, since his income is earned in that city, it ought to be spent there.

(a) Has the father placed himself under obligations to the people of Detroit by earning an income from them?

(b) Supposing the distribution of population unchanged, would Detroit as a whole get any more employment on the one plan than on the other?

14. A Western newspaper, anxious to hinder the people of the community from buying outside, represents a silver dollar as appealing to a home dentist about to send it to Montgomery Ward & Co. of Chicago, in the following strain:

"Now, look here, Doc. If you'll only let me stay in this town I'll circulate around and do you lots of good. You buy a big beefsteak with me, and the butcher will buy groceries, and the grocer will buy dry goods, and the dry goods merchant will pay his doctor bill with me, and the doctor will spend me with a farmer for oats to feed his buggy horse, and the farmer will buy fresh beef from the butcher, and the butcher will come around to you and get his tooth mended. In the long run, you see, I will be more useful to you here at home than if you send me away forever."

(a) Clear up once more the fundamental errors in all talk of this kind.

(b) Show that, even if we admit the principle implied in the quotation (that only the money spent at home can complete the circuit so as to get back to the original spender), *only a very small portion* of the dollar could get back to the dentist.

15. English people own much capital which is earning interest or dividends in other countries. What effect does this fact tend to have on England's exports or imports?

16. "If it were possible for one county to provide by law or otherwise that no dollar which came into it could be sent out, within two years the county would be so much richer than its neighbors that they would begin to wonder, etc."—Western newspaper.

(a) What do you suppose are his reasons for expecting such a policy to produce the great prosperity predicted?

(b) Show that his great expectations are unreasonable.

(c) Show that the policy in question would be likely to make the county poorer rather than richer.

17. "You admit that it would increase the productive power of a given county to have a man with one hundred thousand dollars move in, bringing his money with him. How, then, can you deny that the county would grow richer if it could and should for three or four years stop all money which came in from going out?"

Show that we are guilty of no inconsistency in admitting the one contention and denying the other.

18. "Exports tend to stimulate imports, and *vice versa*."

Prove it.

19. The following was taken from a country newspaper in 1908: "It appears to this paper that all this severe criticism . . . of Mrs. Howard Gould's requiring $70,000 a year to pay her expenses is quite uncalled for. What's the difference, anyway? If she and her folks have the 'dough,' let them spend it as fast as they like. That's better than hoarding it. When the money is spent it goes to some one and gets into circulation. We people whom circumstances compel to live on 30 cents a day would be glad to see all the old millionaires spending each $70,000 a year on himself, or ten times that amount if he wants to. The money isn't lost."

(a) State clearly what advantage the writer of the above probably imagined that the public derive from the extravagance of Mrs. Gould and other rich people.

(b) Explain the fallacy in the doctrine.

(c) Show that the last sentence of the quotation is of no significance in the matter.

20. "The so-called Principle of Reciprocity is all rubbish. It is child's play to show that we can sell to other countries even

if we do not buy from those countries. No British buyer of American goods asks the question whether America buys British goods. His only question is: 'Does this article in character and price suit me?' if so, he buys it. Further, it is a matter of common knowledge that a country will often buy a great deal from some other country, even though it sells little or nothing to that other country. Thus Germany has no better customer than England, whose goods she keeps out by tariff. So we buy largely from Brazil, though we sell her very little."

(a) State the Principle of Reciprocity.

(b) Show that the arguments against this principle contained in the above quotation have no bearing on the case.

21. "Our neglect of the South American trade is simply scandalous. We buy a large amount from Brazil every year but sell her almost nothing, leaving her markets to be gobbled up by England and other European countries. We ought to subsidize a great merchant marine running to South America, and drive Europe out of a market which is naturally ours."

Show that a very plausible argument can be made for the contention that we should be cutting off our own noses if we were to drive Europe out of the markets of South America.

CHAPTER VIII.

THE PRINCIPLES GOVERNING THE IMMEDIATE DETERMINATION OF PRICES.

We have already more than once emphasized the point that, in the present economic order, exchange is the factor which *effects*—makes possible—the co-operation of men in their economic efforts and, what is equally important, *regulates, directs,* that co-operation. It has also been noted that, in this regulating of co-operation, the chief process whereby exchange accomplishes the result is *moving prices up or down.* For example, if too little of any particular thing is produced, exchange presently gives us a higher price, which higher price makes the producing of the thing in question more profitable and so causes more to be produced. Again, exchange regulates the *utilization* of the stock already in existence *through changes in price.* Thus, if the stock of any commodity is exceptionally small, the price rises, people curtail their consumption, and thereby the abnormally small stock is made to go around. Finally, exchange regulates how wealth shall be *distributed,*—how much each shall receive in wages, salary, interest, profits, etc., chiefly *by this same process of moving prices up or down.* From these facts it is manifest that the processes of price determination are, in the present order, of paramount importance and that the natural laws which regulate these processes form a very vital part of the science of economics.

For the present, we shall confine our attention to the principles supposed to be operative *under complete freedom of competition and contract.* Later we shall have to comment briefly on price making under *monopoly, i.e.,* a state of things wherein the supplying of any commodity is practically under the control of a single natural or legal person. Even in our present study it will need to be noted that competition and contract are in practice never *completely* free and hence the principles to be set forth are never perfectly operative. They do, however, play much the largest part in actual price determination and so must be fully mastered. Again, our present study has to do mainly with

wholesale, rather than retail, prices. The latter are largely ignored in economic discussion. The principal reasons for this are: (1) it may be assumed that retail prices must tend to follow, and in the long run *do* follow wholesale prices, and (2) the principles governing the variations from what wholesale prices would lead us to expect which actual retail prices show, are too complicated and obscure to reward adequately their serious study.

In making an adequate study of the problem of price-determination, it is almost indispensable to attack that problem at successive levels, or strata, so to speak,—in other words, with successive degrees of thoroughness. That is, we find it best to begin by trying to settle the more superficial phases of the problem; to follow this with a solution that goes into the matter more deeply; and then perhaps to finish with an attempt to cover the whole matter to the very bottom. In support of this procedure, there are at least two good arguments. First, the deeper processes of price-determination are worked out through more immediate processes which, therefore, need to be studied first as a preliminary to the analysis of the deeper processes. Secondly, in dealing with different practical problems, the theoretic materials needed belong to quite different levels or strata:—for some purposes, only the most superficial processes need to be taken into account; for other purposes, deeper processes must come into view; for still other purposes, still deeper processes; and so on.* The study of price-determination here undertaken will break roughly into three parts: (1) the *immediate processes,* (2) the intermediate processes,—*normal price,* and (3) the *ultimate principle* of price-determination. All such divisions are of course more or less arbitrary; but the one used will, I think, justify itself as we proceed. This chapter, then, is concerned with the **immediate processes of price determination.**

The statement just made, that we are to begin with the immediate processes of price-determination, needs, after all, some qualification. One process of price-determination which is probably the most immediate of all will receive only mention. I allude to *bargaining* which forms, we may assume, the most

* This is not at all peculiar to the field before us; but is common to all subjects of human knowledge. Almost any person needs a certain amount of information with respect to human anatomy; a coach of athletes needs a much larger amount; a surgeon can hardly afford less than the completest possible knowledge.

immediate of all processes concerned in the determination of prices. We mean by bargaining the forming of an agreement or bargain between buyer and seller. In primitive economic societies, this bargaining plays a very large part in the fixing of actual prices; and, even under a more highly developed order, its role, though less significant, is still of considerable importance. But, whether of importance or not, experience seems to show that its serious study can not be expected to yield scientific results of sufficient magnitude to repay the effort. It will, therefore, be passed by in our discussion of prices.

Section A. **Demand.**

1. The Nature of Demand.

It is a fact with which almost every one has some acquaintance that, broadly speaking, the determination of price is somehow a matter of demand and supply. We naturally, then, begin with a study of these elements—devoting the present section to the former, demand. In general, we shall understand by the demand for any particular commodity **the quantity of that commodity which buyers stand ready to take at some specific price.** In this definition let us emphasize, first, the point that demand is the amount which buyers stand ready to take,—offer to take. That is, demand must not be confused with (a) the amount men *want*, on the one hand, nor (b) with the amount men *actually buy*, on the other. Demand must not be confused with the amount wanted. Mere want, mere desire, not backed by buying power and not brought to an issue in determination to purchase if the price is satisfactory, does not constitute demand. The penniless man looking in at the baker's window however hungry, adds nothing to the demand for bread. But, while men's needs, wants, plans, do not constitute demand, they plainly play a vital role in *determining* demand. Thus, if an electric company is intending to use the water-power of the Huron river on a great scale for supplying current to Detroit and other cities, said company will need a large amount of copper wire, and, so, will doubtless come on the market to buy such wire. That is, needs, plans, constitute one condition of demand. They do not, however, constitute demand itself. Demand exists only when the company stands ready to buy the wire. We have thus seen that it is important not to confuse demand with the amount which people want or need, it is equally

important to keep it distinct from the amount *actually bought.* The amount of demand and the amount bought will often be equal; but the meaning, the connotation, of the two phrases is different. Further, this difference is of much importance. The amount which buyers stand ready to take plays a very great part in determining price. But the amount actually bought plays no such part,—in fact, is itself determined after price is determined.

We have elaborated the point that, according to our definition, the demand for any commodity is the amount of that commodity which buyers stand ready to take. We must emphasize, secondly, the phrase "at some specific price." That is, every proper statement affirming the existence of a demand must explicitly or by implication represent this demand as conditioned on a certain price. Thus, it is proper to say "The demand for silver at 55 cents per ounce is 120,000 ounces." It is not proper to say "The demand for silver is 120,000 ounces," leaving out the phrase "at 55 cents per ounce," except on condition that both the person making the remark and the one to whom it is addressed already have one particular price in mind, as for example, the price at which sales are actually being made at the time the statement appears. The grounds on which the above contention rests are perhaps sufficiently evident. The affirmation that "the demand for silver is 120,000 ounces," strictly interpreted, ought to mean that there is a demand for 120,000 ounces of silver *whatever be the price.* But, of course, no such affirmation could reasonably be made. If any person familiar with business matters were to make a statement like the above, he would doubtless assume that other persons would understand him to mean that the demand named existed *at the current market price* or at some price approximately equal to said market price.

To the above account of this matter, it should be added that the relation between the volume of demand and the conditioning price is *two-fold.* (1) A properly worded affirmation with respect to demand means that, *if* price is the one named, the demand will be of the volume indicated. (2) Secondly, it means that, *only* if price is the one named, will demand be of the volume indicated. Accordingly, if we say that the demand for silver is 120,000 ounces at 55 cents, we should be understood as affirming both the following propositions: (a) If any person wishes to insure that demand shall not get as large as 120,000 ounces, he must insure that price does *not* go as low as 55 cents. (b) If any person wishes to insure that demand *shall* be as great

as 120,000 ounces, he must insure that price *does* go as low as 55 cents.

2. The Relation of Demand to Price.

In the preceding discussion, it was shown that the quantity of demand is conditioned upon price. We must now explain this conditioning more fully. Let us suppose that, on a certain day, the actual price of silver proves to be, say, 55c per ounce, and that at this price buyers offer to purchase, say, 120,000 ounces,

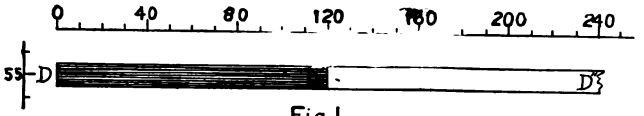

Fig. 1.

thus making this amount the actual demand. This quantity actually demanded at 55c is represented in the accompanying diagram by the shaded portion, DD', of the broken rectangle DD", —that rectangle, as a whole, being intended to represent the indefinite volume of demand at some price or other. Now, starting with this hypothesis of 120,000 ounces actually demanded at 55c, we may be quite sure that the very same persons who are actually offering to buy 120,000 ounces at 55c, or, anyhow, some other persons, are prepared to buy,—have the mental attitude needed to induce them to buy,—say, 10,000 ounces more at a price of 54c; 40,000 ounces more at a price of 53c; 80,000 ounces more at a price of 52c; and so on. That is, right alongside of this 120,000-ounce demand which is actually realized because a price of 55c is reached, and as a part of the very same general situation, we have various *potential* demands which would just as surely be realized if price were at the right figure, and that without any other change in the forces and conditions which influence demand. In Figure 2, these potential demands at 54c, 53c,

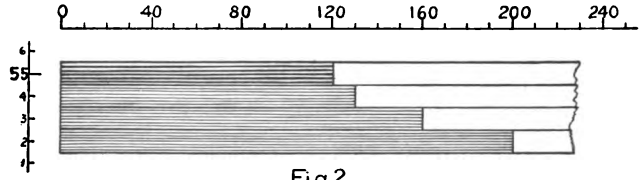

Fig. 2.

and 52c are represented by rectangles which are lightly shaded

in contrast with the deeply shaded rectangle of the demand which is actually realized at 55c.

We have seen that, given the present attitude of buyers, the amount demanded by them would be larger if price were lower than the going price of 55c. It is hardly necessary to say that the complement of this statement is equally true. Given the present mental attitude of buyers, the amount demanded by them would be smaller if price were higher than 55c, instead of lower. Thus, some of the people whose offer to buy at 55c aggregated 120,000 ounces, would, if price rose to 56c, withdraw a part or all of their former demand; they, or others, would withdraw still more of that demand, if price rose to 57c; still more, if it rose to 58c; and so on. That is, as a part of the same general situation from which we set out, we have a series of potential demands at prices *above*, as well as at prices below, the assumed one of 55c. Supposing these new demands to be 110,000 ounces at 56c, 80,000 ounces at 57c, 40,000 at 58c, and so on, and combining them with the demands brought out in our last diagram, we should have the result represented in Figure 3. That is, starting

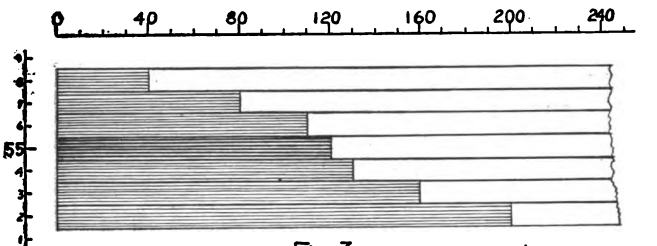

Fig. 3.

with the actual price of a particular day and the demand which led to actual purchases, we can be sure that on this very same day the mental attitude of buyers was such that they would have taken a larger amount, if price had been one step lower; a still larger, if price had been two steps lower; and so on; while, on the other hand, at the same time the attitude of buyers was such that, if price had been one step higher, they would have taken a smaller amount; if price had been two steps higher, they would have taken a still smaller amount; and so on.

In the above analysis we have conceived the initial demand and price as a demand and price which were actually realized on some particular day. Obviously, we are at liberty to conceive

this demand in the same way as the others, i. e., as a *potential* demand,—the demand that would be realized if actual price were 55 cents. Further, for various reasons this way of conceiving the matter will best suit our purposes, especially when we are considering the more fundamental problems and processes of price-determination, and are called on to ascertain the very thing hitherto assumed, namely what price will tend to be established as the result of a given set of conditions, including the demand schedule. Amending our diagram in accord with this altered way of conceiving the demand schedule and omitting the inoperative parts of our rectangles, we shall have the result given in Figure 4.

From the preceding discussion, we have learned that demand is always relative to a particular price stated or implied, and that the

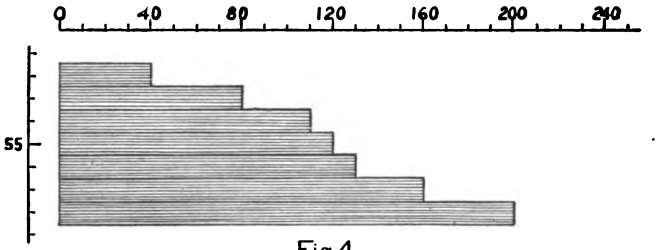

Fig.4.

amount of demand is, generally speaking, inversely *proportional* to price; the lower the price, the greater the demand; the higher the price, the smaller the demand. It follows that the facts of demand at any time require for their adequate statement a series of conditional propositions. Thus, the supposed case for silver would be most adequately stated as follows:—

The demand would be 40,000 oz. if, and only if, price were 58c or lower.
The demand would be 80,000 oz. if, and only if, price were 57c or lower.
The demand would be 110,000 oz. if, and only if, price were 56c or lower.
The demand would be 120,000 oz. if, and only if, price were 55c or lower.
The demand would be 130,000 oz. if, and only if, price were 54c or lower.
The demand would be 160,000 oz. if, and only if, price were 53c or lower.
The demand would be 200,000 oz if, and only if, price were 52c or lower.

Such a series of propositions, we call a demand schedule. In order to abridge the statement of it, we will put it in the form

TABLE 1.

Price cents	*Demand* 000 *oz.*
58	40
57	80
56	110
55	120
54	130
53	160
52.	200

of two columns of figures with the proper headings, Price and Demand; but the student must always remember that it is, in effect, a series of conditional statements, such as those already given; i. e., in each case it is affirmed that the demand would be so and so if, and only if, the price were so and so. Presented in this way, the above demand schedule will appear as in Table I. The schedule just given probably comes nearer to representing the facts of experience than a more symmetrical one would. But as our purpose in using these schedules is primarily pedagogical, I shall change this one to a form which can be used more effectively in clearing up the theory of prices. In this new schedule, we will make the variations of demand consequent upon changes in price *uniform*, viz., 10,000 ounces in each case. Thus altered, and carried both higher and lower, our schedule will appear as in Table 2. In diagrammatic form it is presented in Figure 5.

TABLE 2.

Price cents	*Demand* 000 *oz*
60	70
59	80
58	90
57	100
56	110
55	120
54	130
53	140
52	150
51	160
50	170

As the points brought out in the

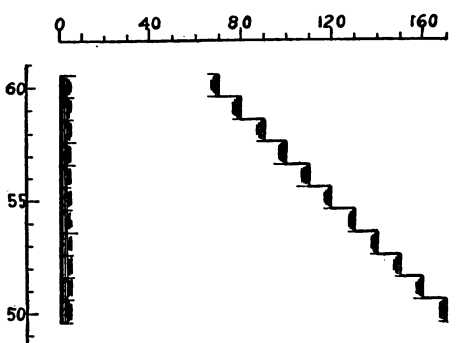

Fig. 5.

preceding discussion are of much importance in later connections, we will give them the emphasis derived from definite formation in a principle which we will call the law of the inverse elasticity of demand.

Principle. The Law of the Inverse Elasticity of Demand.

Demand is always relative to a particular price expressed or implied; and, broadly speaking, varies inversely as said price, though not proportionally.

Note: A point of much importance which should be noted here is the ambiguity in our use of the expression "demand has changed." In one connection, we employ this language to mean that demand *at a given price* is different from what it was *at the same price*. In another connection, it means that demand *without respect to price* has changed. This last meaning is necessary just because demand is conditioned upon price, and so can be changed *because* price has changed. The fact really is that the former use of the phrase is not quite accurate. When we say that demand at some one price has changed from what it was at the same price, we really mean that *the demand schedule has changed;* so that we might avoid the confusion by using this phrase "the demand schedule has changed" when we are dealing with a case where demand at the same price is different,—reserving the expression "demand has changed" for the cases where the change is due to a change in price itself. As usage in language matters is extremely persistent, we are not at all likely to make this change. We should therefore take much pains to distinguish carefully the two meanings; for confusion at this point has in the past proved to be the source of a very considerable amount of fallacious reasoning.

3. The Interpretation of Demand Schedules.

As we shall constantly be called upon, during our study of the theory of price, to make a discriminating use of demand schedules, it is very important that, at the outset, we gain familiarity with the true nature and significance of these schedules and their various parts. First, it is to be noted that demand at any particular price is a *composite,* made up of many sections or increments, each one of which would appear at some higher price. To clear this up, let us start with the lowest line in our demand schedule on page 169, i.e., the demand at 50 cents. Manifestly, this 170,000 ounces consists of the 10,000 which only came in when price fell to 50c, added to the 160,000 already wanted at 51c. But this 160,000 ounces, in turn, consists of the 10,000 which came in at 51c, added to the 150,000 already wanted at 52c. This 150,000 ounces, again, is the 10,000 coming in at 52c added to the 140,000 wanted at 53c, and so it would be all the

way up the line. Accordingly, the 170,000 ounces wanted at 50c is the sum of all the increments of demand which would successively appear, if price were to pass through all stages from the highest to the lowest. This is brought out in Figure 6, in which

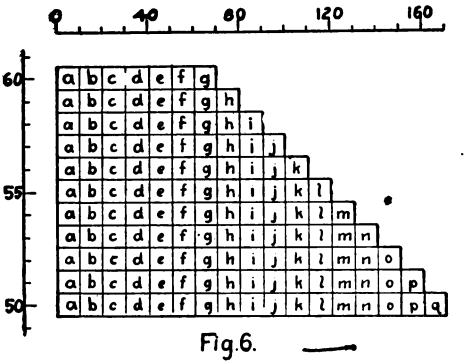
0
40
80
120
160
60
55
50
a b c d e f g
a b c d e f g h
a b c d e f g h i
a b c d e f g h i j
a b c d e f g h i j k
a b c d e f g h i j k l
a b c d e f g h i j k l m
a b c d e f g h i j k l m n
a b c d e f g h i j k l m n o
a b c d e f g h i j k l m n o p
a b c d e f g h i j k l m n o p q

Fig. 6.

the small letters represent the successive additions to demand which are supposed to take place at each price. Thus, *q* comes in at 50c itself; *p* came down from 51c; *o*, from 52c; *n*, from 53c; *m*, from 54c; *l*, from 55c; and so on.

Another point which is closely tied up with the preceding and which is evident enough, though at times forgotten, is that we must always conceive the demand figures at different prices as alternatives which mutually exclude each other. Thus, if the price is 54c, then the demand is just the amount wanted at that price, 150,000 ounces. It is not this demand plus that at 55c, plus that at 56c, plus that at 57c, and so on. These higher price demands have already been included. The demand at 54 cents as given covers everything which has preceded that figure.

Another important matter to be brought out in our analysis of demand schedules, concerns the different *divisions* into which these sections or increments of demand group themselves just as soon as any particular price is established. The first break manifestly is between the *excluded* increments and the *included* ones. Thus, if price proves to be 55 cents, all the increments of demand which depend upon a price lower than this will, of course, be shut out; while all increments which depend upon this or a higher one will be included, for the man who was ready to buy at 56c or 57c or 58c will surely be in the same frame of mind if price falls to 55c. In Figure 7, the included increments

of demand are represented by the shaded squares, and the price at which each comes in is indicated by its position.* The excluded increments of demand are represented by the uncolored squares.

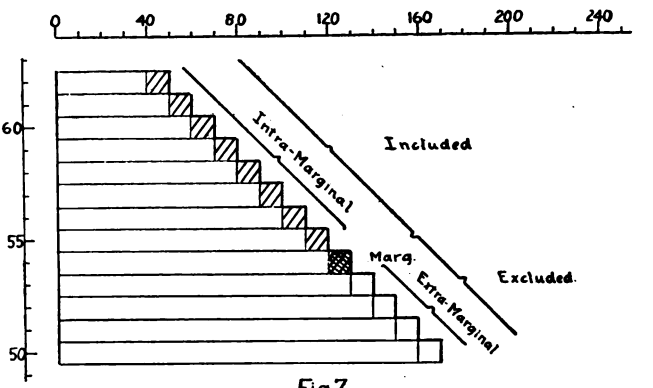

Fig.7

Another and more important grouping of the different increments divides the included ones into *marginal* and *intra-marginal,* and distinguishes the excluded ones as *extra-marginal.* The marginal increment of demand is that addition to demand which was the last to appear when an actual price was being established. In Figure 7, it is represented by the lowest of the shaded squares, labeled "Marg"; for this 10,000 ounces, which would not have been wanted had actual price been 60c or 59c or 58c, i.e., which was wanted only because actual price fell as low as 55c, must, plainly, be the last addition to demand. In a sense, this increment of demand is more significant in price-determination than any other; since it is the desire of sellers to bring out this particular 10,000 ounces of demand which leads them to bid price down to 55 cents. On account of the peculiar location of this section of demand, i.e., because it is the *last* increment of demand which can be satisfied at the going price of 55 cents, it is called the **marginal increment** of demand. This makes it natural to distinguish all other included sections or increments of demand,—i.e., all sections which are realized because conditioned upon prices at least as high as 55 cents,—as

* Obviously, there are several more included increments of demand which do not appear in the diagram, because they came in at prices higher than are provided for in this diagram.

being *within* the margin, and hence to designate them **intra-marginal increments** or sections of demand. On the other hand, the excluded sections of demand, i.e., the sections or increments which would appear only if price fell to figures lower than 55 cents, being *without* the margin, are naturally called **extra-marginal increments** or sections of demand. As will later appear, it is chiefly *the first* among the extra-marginal increments of demand which plays a vital role in the immediate determining of prices.

A point about the marginal increment of demand which is of much importance, though at the same time quite obvious, is that said marginal increment is *the one which comes in with that price, among all the prices at which any increment of demand comes in, which is the* **lowest** *of the series.* Thus, in Figure 7, with a price of 55 cents, the prices at which the included increments of demand come in are 55 cents, 56 cents, 57 cents, 58 cents, and so on; and it is the lowest of these, 55 cents, at which the last or marginal increment of demand comes in.

This lowest price of the series of prices at which increments of demand come in, *viewed as the price on which is conditioned the forth-coming of the marginal increment of demand,* is a concept of prime importance in our present study, and will be designated the **marginal demand price.** Clear and definite notions concerning it can best be attained by starting with the hypothesis

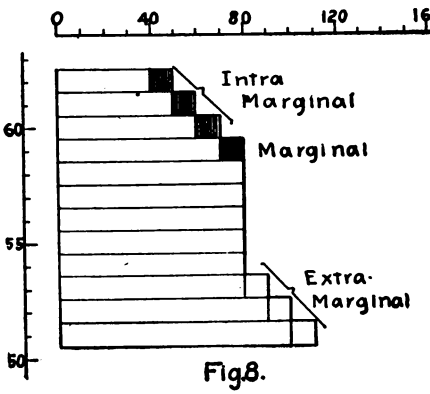

Fig.8.

that demand remains constant through several changes in price.*

* As we shall learn in the next chapter, long-time demand schedules, i. e., schedules which sum up the demand facts for a whole period, often show this peculiarity.

Such a demand schedule is represented in the accompanying table and Figure 8. Since in this case there is no addition to demand after 59 cents is passed until 53 cents is reached, if actual price were 55 cents, the marginal demand price would be 59 cents,—that being the price at which the last addition to demand was made. This price, 59 cents, would obviously continue to be the marginal demand price, if actual price rose to 56 cents or 57 cents or 58 cents or 59 cents. If, however, actual price became 60 cents, the marginal demand price would change to 60 cents; since the 10,000 ounces which formerly came in at 59 cents would no longer be wanted, and so the 10,000 ounces coming in at 60 cents would be the last increment of demand. As indicated at the outset, this marginal demand price is *the lowest of all the prices on which depends the coming in of any portion of the effective or included demand.* In the example just used, with actual price at 55 cents, no portion of the demand which is conditioned on a price of 54 cents or less would be effective; for it is obvious that the demand of a buyer who wants silver only on condition that its price is as low as 54 cents will not be satisfied at all when the price is 55 cents. On the other hand, it is equally evident that *all other portions* of demand will be effective when actual price is 55 cents; since the particular prices to which actual price must fall in order to bring out these other portions of demand are all higher than 55 cents, being 59 cents, 60 cents, 61 cents, and so on. Finally, among these prices which are necessary to bring out the effective portions of demand, the lowest, 59 cents, is the one which is necessary to bring out the last or marginal increment of demand, and is, therefore, the marginal demand price.

Demand 000 *oz*	*Price cents*
50	62
60	61
70	60
80	59
80	58
80	57
80	56
80	55
80	54
90	53
100	52
110	51

Under the demand schedule represented in Figure 8, the marginal demand price was 59 cents, even though actual price was as low as 55 cents. The typical market schedule, however, is more like that represented in Figure 7. In such a case, the marginal demand price would necessarily *coincide* with the actual price.

The reason is plain. With every fall in price, some addition to demand takes place; hence, whatever price in the series became the actual price, some portion of the demand would be forthcoming only because that particular price was established; and so that price would be the *marginal demand* price as well as the actual price. But the fact that, in the cases chosen as typical, actual price and marginal demand price necessarily coincide, does not make the latter concept superfluous or useless. As already hinted, we shall later meet long-time schedules wherein these quantities do not coincide; and, even when they do coincide, they are after all essentially different things,—*one, the marginal demand price, being in part at least the determinant of the other, actual price.*

Besides the marginal demand price, we shall have occasion to distinguish the **first extra-marginal demand price:** i.e., the price which would be necessary to make actual the first extra-marginal increment of demand. Under the demand schedule represented in Figure 8, the first extra-marginal demand price would be 54 cents, as long as actual price was anything from 55 cents up to 59 cents. If actual price rose to 60 cents, the first extra-marginal demand price would be 59 cents. If actual price fell to 54 cents, the first extra-marginal demand price would be 53 cents. As a correlate of the first extra-marginal demand price, we have the first **intra-marginal demand price,** meaning the price which was necessary to bring out the next to the last increment of demand. In Figure 8, this first intra-marginal demand price would be 60 cents for any price from 55 cents to 59 cents.

A few pages back, we explained the meaning of the phrase "marginal section or increment of demand." A closely related concept of some importance is the *total* demand at the marginal demand price,—we will designate it simply the **marginal demand.** This of course covers, not just that increment of demand which becomes effective at the marginal demand price, but *all the demand that is effective at that price,* whether it is new or is brought over from higher prices. Just as marginal demand means the total demand at the marginal demand price, so the first intra-marginal demand and the first extra-marginal demand mean the total demands at the first intra-marginal demand price and the first extra-marginal demand price respectively.

It is hardly necessary to say that we often have occasion to

apply the terms marginal, extra-marginal, and intra-marginal to *buyers*. The meaning is fairly obvious. Marginal buyers are those who make some or all of their purchases *only when, and because, price has fallen to the point where it is.* In other words, the marginal buyers are the ones who are responsible for the marginal increment of demand. So, the intra-marginal buyers are the ones who are responsible for the intra-marginal increments of demand. Their purchases would be assured, even if price were higher than it proves to be. The extra-marginal buyers are the ones who are responsible for the extra-marginal increments of demand. They make no purchases and are frequently called the excluded buyers.

ILLUSTRATIVE PROBLEMS.

1. Suppose that the demand schedule for silver at a certain time is represented by the accompanying table, and answer the questions which follow.

Demand 000 *oz.*	*Price cents*
66	68
70	67
70	66
70	65
84	64
92	63
100	62
100	61
100	60
100	59
107	58
120	57
120	56
120	55
133	54
145	53
145	52
156	51

(a) Interpret the first three lines; the last five lines.

(b) What would be the marginal increment of demand if actual price were 67 cents? 65 cents? 63 cents? 59 cents? 57 cents? 55 cents?

(c) What would be the first extra-marginal increment of demand if actual price were 66 cents? 65 cents? 61 cents? 59 cents? 54 cents?

(d) What would be the first intra-marginal increment of demand if actual price were 65 cents? 64 cents? 62 cents? 59 cents? 55 cents?

(e) What would be the marginal demand price if actual price were 67 cents? 66 cents? 63 cents? 60 cents? 56 cents? 52 cents?

(f) What would be the first extra-marginal demand price if actual price were 65 cents? 66 cents? 67 cents? 63 cents?

(g) Who would be the marginal buyers if actual price were 66 cents? 53 cents? 55 cents? 60 cents? 54 cents?

(h) What would be the first intra-marginal demand price if actual price were 66 cents? 62 cents? 59 cents? 54 cents? 55 cents?

(i) Who would be the first extra-marginal buyer if actual price were 66 cents? 65 cents? 61 cents? 58 cents? 56 cents? 52 cents?

(j) Who would be the first intra-marginal buyer if actual

price were 65 cents? 67 cents? 62 cents? 59 cents? 56 cents? 53 cents?

2. Suppose that on the second Saturday of October a section of the demand schedule for wood in Ann Arbor is as follows: 1 cord wanted at $6; 2 at $5.75; 4 at $5.50; 3 more at $5.25; 3 more at $5; 7 more at $4.75; 8 more at $4.50; and so on. Put it into tabular form.

3. Suppose that the conditions of demand for Milton's autographs are such that 1 would be wanted if the price were $200; 2 if price were $175; 4 if $150; 5 if $140; 8 if $125; 9 if $110; 12 if $100; 13 if $90; 15 if $75; and 20 if $50. Put this demand schedule into tabular form.

(If the problem had said: 1 wanted at $200; 2 at $175; and so on, it would have meant the same thing.)

Section B. **Supply.**

1. The Nature of Supply.

We have considered one of the two essential elements in price-determination, demand; we must now take up the second, supply. In general, we shall understand the supply of any commodity to mean the *quantity of that commodity which sellers stand ready to dispose of at some specific price.* Here we need to emphasize, first, the statement that supply is the amount which sellers stand ready to dispose of. That is, the supply of anything should not be confused either (a) with the total amount in the hands of producers or dealers, or (b), on the other hand, with the amount actually sold. Supply should not be confused with the total amount in the hands of producers or dealers. This total we call stock; and only a part of it constitutes supply,—i.e., so much of it as people stand ready to sell at some price or other. But, though supply is not the same as stock, it is hardly necessary to say that stock is the immediate source of supply, and, therefore, plays a large part in determining supply. On the one hand, it always sets an upward limit to supply. On the other hand, it exists only to become supply, and, therefore, must ultimately make supply as large as itself. The supply of wheat in the market today may be only 10,000,000 bushels, though the stock is 1,000,000,000 bushels; but, in the course of the season, substantially all of the 1,000,000,000 bushels is bound to be offered for sale, and, therefore, taking the season as a whole, the supply is certain to become substantially coincident with the stock.*

* It follows from the last statement that the above distinction between stock and supply is more particularly applicable in the discussions of the present chapter. When we come to consider normal price, the price which

Again, supply must not be confused with the amount actually sold. The reason is analogous to that which was given to show that we should not confuse demand with the amount bought. As a matter of fact, "the amount which people stand ready to dispose of" may be, but need not be, equal to "the amount which is actually sold." But, even if the two were always quantitatively equal, the meaning, the connotation of the two phrases would be different. "The amount which sellers stand ready to dispose of" plays a very great part in determining price; but "the amount actually sold" is itself determined after price is determined.

We have elaborated the point that, by our definition, supply is the amount which sellers stand ready to dispose of. We must, in the second place, emphasize the phrase "at some specific price." The insertion of this phrase means that no statement affirming the existence of a given volume of supply can be recognized as adequate unless it represents supply as *conditioned on some particular price*. Thus, it is proper to say, "The supply of silver is 120,000 ounces at 55 cents an ounce"; but it is not proper to say, "The supply of silver is 120,000 ounces,"—leaving out any mention of price.* For, of course, the latter statement, literally interpreted, means that sellers stand ready to dispose of 120,000 ounces whether the price be low or high; and, obviously, such a statement would in most cases be very absurd indeed.

Note: In the case of producible goods, we should note another concept, closely related to supply but still distinguishable from it. I mean "output." Output is the amount produced. In substance, it will usually be identical with stock; but it is logically distinguishable from the latter, and, in various connections, this distinction is of importance.

2. The Relation of Supply to Price.

We have already seen that supply like demand is always relative to a specific price. We must now explain this relation more precisely. Let us start with a hypothesis analogous to that used in the case of demand; i.e., let us suppose that on a certain day the price of silver proves to be 55 cents an ounce, and that, at this price, sellers offer to dispose of 120,000 ounces,—thus making this amount the realized, effective supply. In the accompanying

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tends to prevail over some considerable period, we usually have to consider supply as conterminous with stock.

* Unless there is an understanding between the person making the statement and the person to whom it is made that, when no price is mentioned, the current market price is implied.

diagram, this 120,000 ounces is represented by the shaded portion, SS', of the broken rectangle SS'S",—that rectangle, as a whole,

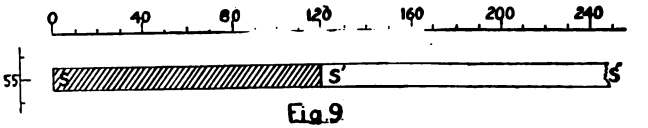

Fig.9

being intended to represent the indefinite volume of supply at some price or other. If now, we start with this hypothesis of 120,000 ounces actually offered for sale at 55 cents, we may be quite certain that the very same persons who are offering to sell these 120,000 ounces or, anyhow, some other persons, are prepared to sell, are in the mental attitude to induce them to sell, say, 10,000 ounces more at a price of 56 cents; 40,000 more at a price of 57 cents; 80,000 more at a price of 58 cents; and so on.* That is, right alongside the 120,000 ounce supply which is actually realized because its price, 55 cents, is established, and as a part of the very same general situation, we have various potential supplies which would just as surely be realized if price

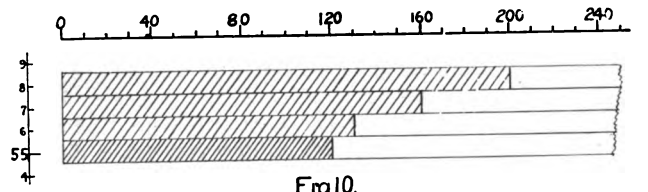

Fig.10.

were right, and that without any further change in the forces and conditions which influence supply. In Figure 10, these potential supplies are represented by the slightly shaded portions of the proper rectangles, while the actual supply at 55 cents is represented by the heavily shaded portions of the proper rectangle.

We have seen that, given the present attitude of sellers, the amount offered by them would be *larger* if price were *higher* than the going price of 55 cents. Quite as true, plainly, is the

* This proposition is so familiar in experience and so clearly follows from the fact that the seller's advantage is in higher prices, that we may assume its acceptance without argument.

complementary proposition that, given the present attitude of sellers, the amount offered for sale would be *smaller* were price *lower*. That is, to complete our schedule of supply we shall have to add a series of potential supplies at prices below, as well as a series at prices above, the assumed market price of 55 cents. If we suppose these new supplies to be 110,000 at 54 cents, 80,000

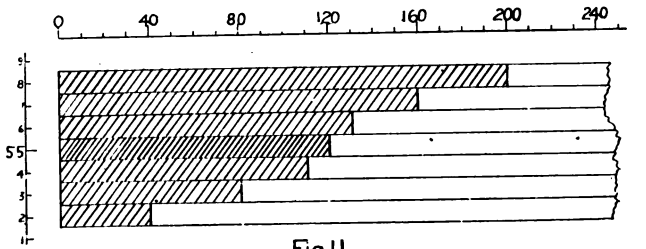

Fig. 11

at 53 cents, 40,000 at 52 cents, and so on, and combine them with the supplies already assumed for other prices, we shall have the results which are represented in Figure 11. Summarizing these results, we can say that, if we start with the actual price of a particular day and the supply which led to actual sales that day, we can be sure that, at this very same time, the mental attitude of sellers was such that they would have offered for sale a larger amount, if price had been one step higher; a still larger amount, if price had been two steps higher; and so on; while, on the other hand, at this very same time, the mental attitude of sellers was such that they would have offered for sale a smaller amount, if price had been one step lower; a still smaller amount, if it had been two steps lower; and so on.

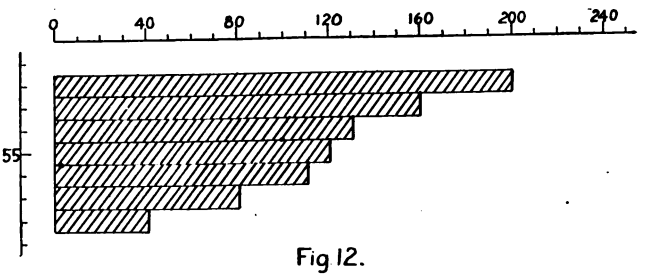

Fig 12.

In the above analysis, we have conceived the initial supply

and price as a supply and price which were actually realized on a particular day. Obviously, we are at liberty to make the same shift that we did in the case of demand, i.e., to conceive this 55 cent supply as a *potential* one like the others. Amending our diagram accordingly, and omitting the inoperative portions of the rectangles, we shall have the results given in Figure 12.

From the preceding discussion, we have learned that supply is always relative to a particular price stated or implied, and that the amount of supply is, generally speaking, directly proportional to price. The lower the price, the smaller the supply; the higher the price, the larger the supply. It follows that the facts of supply at any time require for their adequate statement a series of conditional propositions. Thus, the supposed case for silver would be most adequately stated as follows:

The supply would be 200,000 oz. if, and only if, price were 58c or higher.

The supply would be 160,000 oz. if, and only if, price were 57c or higher.

The supply would be 130,000 oz. if, and only if, price were 56c or higher.

The supply would be 120,000 oz. if, and only if, price were 55c or higher.

The supply would be 110,000 oz. if, and only if, price were 54c or higher.

The supply would be 80,000 oz. if, and only if, price were 53c or higher.

The supply would be 40,000 oz. if, and only if, price were 52c or higher.

Such a series of propositions, we call a supply schedule. In order to abridge the statement of it, we will put it in the form of two columns of figures with the proper headings, Price and Supply; but the student must always remember that such a table is in effect a series of statements like those given above; i. e., in each case it is affirmed that the supply would be so and so if, and only if, price were so and so. Stated in this new way, the above schedule would appear as in Table 1.

TABLE 1.

Price cents	*Supply* 000 *oz.*
58	200
57	160
56	130
55	120
54	110
53	80
52	40

The table just given probably has more resemblance to one which would represent the facts of experience than a more symmetrical table would have. But for

our purpose, which is primarily pedagogical, I shall change this schedule to a form which can be used more effectively in clearing up the theory of prices. In this new schedule, the variations of supply with changes in price are uniform, being 10,000 ounces in each case. Thus altered and carried both higher and lower, our schedule will appear as in Table 2. In diagrammatic form it is presented in Figure 13.

As the points brought out in the preceding discussion are of much importance in later connections, we will give them the emphasis derived from definite formulation in a principle.

TABLE 2.

Price	*Supply*
cents	000 *oz.*
60	170
59	160
58	150
57	140
56	130
55	120
54	110
53	100
52	90
51	80
50	70

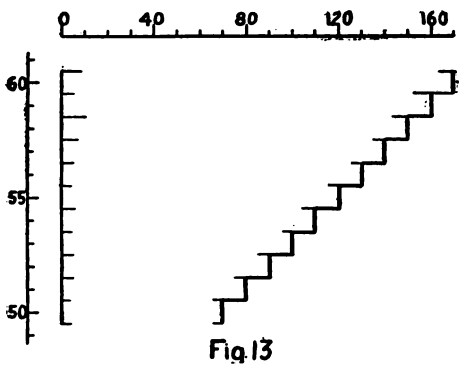

Fig. 13

Principle: The Law of the Direct Elasticity of Supply.

Supply is always relative to a particular price expressed or implied and, broadly speaking, varies directly, though not proportionally, as price.

Note: (1) Remember that we are now dealing with the *immediate* supply schedule, the supply schedule which is effective at any one moment. Later we shall have to do with long-time or normal schedules, i.e., schedules for a whole period of some length. To these latter schedules, the principle just laid down is not always applicable. In one set of cases, the supply is equivalent to the whole stock and, therefore, does not vary at all. In another set, the supply is a *potential* output the amount

of which is *indefinitely large,* provided cost of production is covered; and, hence, we have a schedule which shows no supply at prices below the one covering cost and an indefinitely large supply at that cost price and others above it. But these points will be more fully presented later.

(2) The expression "supply has changed" gives us the same ambiguity that we found in the case of demand. That is, it can mean either (1) that supply at a particular price is different from what it was at the same price or (2) that supply, without respect to price, is really different from what it was. This second meaning is made necessary by the fact brought out in our previous discussions that supply is relative to price,—will change as price changes. The former idea would be more precisely stated by saying that the supply schedule has changed. However, it is not at all probable that we should be able to bring about this change in usage. It is quite important, therefore, that we should watch carefully for the double meaning and avoid the confusion likely to result therefrom.

3. The Interpretation of Supply Schedules.

First, the supply at any particular price, like the demand at the same price, is a *composite,* made up of many different portions, each one of which, save the last, would appear at some lower price. To make this clear, let us begin with the supply at 60c, 170,000 ounces. Manifestly, this 170,000 ounces consists of the 10,000 which comes on the market when, and because, price advances from 59c to 60c, added to the 160,000 already offered when the price was only 59c. But this 160,000, in turn, consists of the 10,000 which comes in when, and because, price rises from 58c to 59c, added to the 150,000 already offered at 58c. This

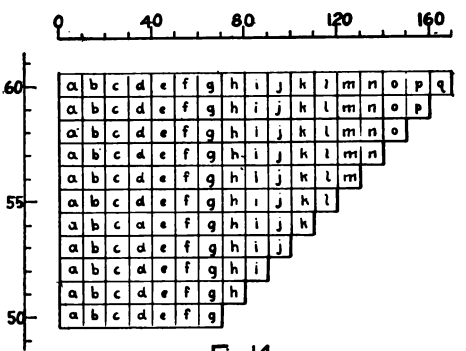
0
40
80
120
160
60
55
50
a b c d e f g h i j k l m n o p q
a b c d e f g h i j k l m n o p
a b c d e f g h i j k l m n o
a b c d e f g h i j k l m n
a b c d e f g h i j k l m
a b c d e f g h i j k l
a b c d e f g h i j k
a b c d e f g h i j
a b c d e f g h i
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Fig.14.

150,000, again, is the 10,000 coming in at 58c added to the 140,000 already offered at 57c. In short, not only is the last 10,000 of the 170,000 offered at 60c a separate unit, the previous 160,000 also consists entirely of just such separate units which have been added with successive steps in the upward movement of price. This is brought out in Figure 14, in which the little squares marked with small letters show for each case the increment which supply receives as price rises to the level indicated. The last increment, *q*, of the 60c rectangle appeared first when that price itself was reached; *p* came up from 59c; *o* from 58c; *n* from 57c; *m* from 56c; and so on. This reasoning is particularly addressed to the case of the 60c supply; but it is evident that precisely similar reasoning would show that the 59c supply, the 58c supply, and so on, are composites made up of increments brought in at the going price and the several prices below.

The point just brought out shows that, in the case of supply as in that of demand, the figure given at a particular price embodies all the supply facts for that price. The supply at 55c is not the amount given at that price plus the amount given at 54c, plus that given at 53c, and so on. These latter have all been taken up into the amount given at 55c itself; and, hence, the 55c figure covers the whole case when actual price is 55c.

With supply, as with demand, it is important to distinguish *the different divisions into which the different sections or increments of supply* group themselves just as soon as any particular price is established. The principal grouping, as before, is into *included* and *excluded* portions. Thus, if price is 55c, all possible increments of supply which are conditioned on a price of 55c or anything lower, will be *included* increments; while all possible increments of supply which are conditioned on a price of 56c or anything higher, will be *excluded* increments. Again, among the included increments, the most important is the **marginal** one, i. e., that section of supply which is the *last* to come in when a particular price is being established. The remainder of these included increments we will call the **intra-marginal** increments. The excluded increments will also be called the **extra-marginal** ones. The location of these various sections of supply is plainly indicated in Figure 15.

A point with respect to the marginal increment of supply which is of much importance, though perhaps sufficiently obvious,

is that the marginal increment of supply is *the increment which comes in with that price, among all the prices under which any increments of supply come in, which is the highest.* Thus, in our example, the increment of supply which comes in at 55c—the highest of the prices at which any came in—is the last one to come in, for it is the only one of the included increments which had to wait until a price of 55c had been reached; and, being the last, it is by definition the marginal increment of supply. This is just the opposite of what we found to be true in the case of demand. For, while the marginal increment of supply is the one which comes in at the *highest* of all those prices which bring in any additions to supply, the marginal increment of demand is the one which comes in at the *lowest* of all those prices which bring

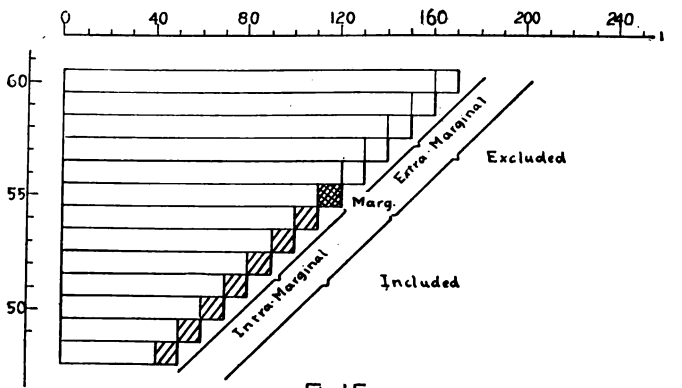

Fig. 15.

in any additions to demand. (Compare Figures 7 and 15.) The same contrast between supply and demand schedules shows in respect to the intra-marginal and extra-marginal increments, i. e., the intra-marginal increments of supply are increments which come in at a price *below* the marginal one, while the intra-marginal increments of demand are increments which come in at prices *above* the marginal one. On the other hand, the extra-marginal increments of supply are increments which come in at prices *above* the marginal one, while the extra-marginal increments of demand are increments which come in at prices *below* the marginal one.

Vitally related to these concepts of marginal, intra-marginal,

and extra-marginal increments of supply, are three others equally important, namely, the **marginal supply price,** the **intra-marginal supply prices,** and the **extra-marginal supply prices.** These several phrases designate in each case that price the realization of which is necessary to bring out the corresponding increment of supply. The concept of marginal supply price is best brought out by supposing for the moment that supply does not change with every change in price but remains constant under several prices. Such a supply schedule is represented in Figure 16 and the accompanying table. After the 51c price has been passed, supply receives no increment until 57c is reached. In consequence, 51c is the marginal supply price so long as actual price is anything from 51c to 56c. Under an actual price equal to any of these, the intra-marginal supply prices are 50c, 49c, and so on; while the extra-marginal supply prices are 57c, 58c, and so on.

Price *cents*	*Supply* 000 *oz.*
59	110
58	100
57	90
56	80
55	80
54	80
53	80
52	80
51	80
50	70
49	60
48	50

In these cases of marginal, intra-marginal, and extra-marginal prices, we have the same antithesis between supply and demand schedules as has appeared in other connections. Thus, the marginal supply price is the *highest* of all the prices on which depends the coming in of the included increments of supply; while, as we saw, the marginal demand price is the *lowest* of the prices on which depends the coming in of the included increments of demand. A like antithesis shows between the intra-marginal supply prices and the intra-marginal demand prices, also between the extra-marginal supply prices and the extra-marginal demand prices.

The supply schedule embodied in Figure 16 was purposely so constructed as to make it possible for the marginal supply price to differ from the actual price. But, as in the case of demand, the typical supply schedule for any moment is more commonly like the one given in Figure 15; and, under that schedule, the marginal supply price and the actual price would necessarily coincide. Nevertheless, the concept of marginal supply price is not superfluous. As will presently appear, this coincidence of

the marginal supply price and the actual price is, in part at least, due to the fact that the marginal supply price determines the actual price, i. e., brings said actual price into coincidence with itself; and this becomes a fact of much importance in the deeper determination of prices, which we study in the next chapter.

In the preceding discussion, we explained the meaning of the phrase marginal section or increment of supply. A closely related concept of some importance is the *total* supply at the marginal supply price,—we will designate it simply **marginal supply.** This, of course, includes not just the increment of supply which becomes effective at the marginal supply price, but rather *all* the supply which is effective at that price, whether new or brought up from lower prices. Just as marginal supply means

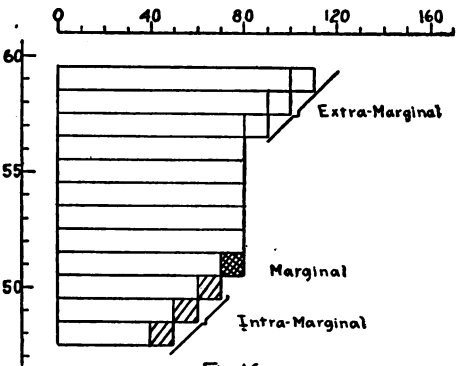

Fig.16.

the total supply at the marginal supply price, so the first intra-marginal supply and the first extra-marginal supply mean the total supplies at the first intra-marginal supply price and the first extra-marginal supply price respectively.

It is hardly necessary to add that we often have occasion to apply the terms marginal, intra-marginal, and extra-marginal to *sellers.* The meaning is obvious. Marginal sellers are those who offer to sell some or all of their offerings only when, and because, price has risen to the point where it is. In other words, marginal sellers are the ones who are responsible for the marginal increments of supply. Their offerings would be made, even if price were lowered. Extra-marginal sellers are those who are responsible for the extra-marginal increments of supply. They,

of course, make no sales and are commonly referred to as excluded sellers.

Illustrative Problems.

1. Suppose the conditions of supply of Milton's autographs to be such that 15 would be offered if the price were $200; 13, if it were $175; 12, if $150; 9, if $140; 8, if $125; 5, if $110; 4, if $100; 2, if $90; and 1, if $75.

(a) Make out this supply schedule in tabular form.

(b) Make out a combined demand and supply schedule using the demand schedule from Problem 3 under Demand.

2. Suppose the supply schedule for cordwood on a certain Saturday to be as follows: 1 cord offered if price is $4.50; 2, if price is $4.75; two more, if $5; three more, if $5.25; 10 in all, if $5.50; 17, if $5.75; and 8 more, if $6.

Make out a combined demand and supply schedule for this wood using the demand schedule from Problem 2 under Demand.

3. Suppose that the supply schedule for silver at a certain date is represented by the accompanying table, and answer the questions which follow:

Price cents	*Supply* 000 *oz.*
68	163
67	150
66	150
65	142
64	135
63	120
62	120
61	120
60	112
59	100
58	100
57	94
56	85
55	85
54	85
53	72
52	72
51	60

(a) Interpret the last five lines, beginning at the last; also the tenth to the fifth.

(b) What would be the marginal increment of supply if actual price were 55c? 60c? 63c? 58c? 52c? 65c?

(c) What would be the first extra-marginal increment of supply if actual price were 54c? 56c? 59c? 64c? 67c?

(d) What would be the first intra-marginal increment of supply if actual price were 63c? 62c? 60c? 57c? 55c?

(e) What would be the marginal supply price if actual price were 67c? 65c? 63c? 62c? 59c? 55c?

(f) What would be the first extra-marginal supply price if actual price were 66c? 63c? 61c? 59c? 55c? 52c?

(g) Who would be the marginal sellers if actual price were 67c? 64c? 63c? 59c? 56c? 54c?

(h) What would be the first intra-marginal supply price if actual price were 55c? 53c? 52c? 59c? 58c? 66c?

(i) Who would be the first extra-marginal sellers if actual price were 66c? 61c? 63c? 59c? 58c? 55c? 52c?

(j) Who would be the first intra-marginal sellers if actual price were 55c? 59c? 62c? 61c? 67c?

Section C. **The Law of Single Price.**

The facts just brought out with respect to demand and supply might perhaps suggest to the student that we should naturally expect to find each commodity having *several* prices. Thus, the demand schedule for silver on page 169 shows 70 thousand ounces wanted if price is 60 cents, 10 thousand more if price falls to 59 cents, and so on. That is, some persons want as much as 10 thousand, provided these can be had for 59 cents, though if the price were 60 cents, these persons would go without. In like manner, some persons stand ready to take 10 thousand more provided, and only provided, price falls to 58 cents. And so on down the line. Again, a similar analysis of the supply schedule of silver appearing on page 182 would show that *supply* breaks up into many parts, just as demand does. That is, a certain quantity will be offered if price is 50 cents, 10 thousand more provided, and only provided, price rises to 51 cents, 10 thousand more, if price rises to 52 cents, and so on. Is it not natural, then, to expect that some silver will be sold at 60 cents, some at 59 cents, some at 58 cents, and so on? The answer is surely a negative one; and the reasons therefor are plain. There are doubtless buyers on the market willing to give more than the price at which sales actually take place; but the competition of sellers to gain the exceptional profit which such sales would secure, would make it unnecessary for any buyer to pay these higher prices. On the other hand, there are doubtless sellers on the market ready to furnish the goods at prices lower than the price at which sales actually take place; but the competition of buyers to get the benefit of these lower prices would make it unnecessary for any seller to take such prices. Formulating the point thus brought out, we have the following

Principle. The Law of Single Price.

Broadly speaking, a commodity can have but one price in the same market at the same time.

Note: There are in actual life many exceptions to this, as to other, economic laws. The principle assumes perfectly free competition, full knowledge on the part of every one as to what is taking place, and so on.

Corollary 1. *The law of single price secures to many consumers a differential advantage known as consumer's surplus, i.e., a quantity of other utilities which they can enjoy because of the fact that they can secure the one under consideration at a lower price than the price which they would be willing to give.*

Corollary 2. *The law of single price secures to many producers a differential gain, sometimes called producer's surplus,*

Corollary 3. *The law of single price secures to owners of some scarce and exceptionally efficient factor in production a differential gain. In the case of land, this is called rent; elsewhere, a quasi-rent.*

ILLUSTRATIVE PROBLEMS.

1. "On the Black Friday of 1869, gold was sold on one side of the room for $1.60 when it was being sold on the other for $1.35, etc."—Sumner.
   (a) Why is such a fact noteworthy from the economic point of view?
   (b) How was it to be explained, do you suppose?

2. Professional men, especially those of the medical profession, frequently try to eliminate the law of single price in respect to their services.
   (a) Why is it for the interest of physicians to get rid of this law?
   (b) Give some reasons why they are quite likely to have more or less success in carrying out this policy.

3. The railroads have struggled very persistently against the Federal and State laws which prohibit discrimination among shippers, i. e., charging different prices for the same service. They commonly wish to sell their services to large and wealthy shippers more cheaply than to smaller and poorer ones.
   (a) Why can it be for their interest thus to get rid of the law of single price in just the opposite way from that followed by physicians?
   (b) Give some reasons why it is extremely difficult for the government to hinder the railroads from carrying out their wishes in this matter.

Section D. **The Law of Supply and Demand.**

1. With Typical Schedules.

We are now prepared to take up the actual processes of price-determination through what is commonly known as *the law of supply and demand.* In doing this, we shall treat first the case under which demand and supply schedules are of the regular,

symmetrical sort which we have called typical. Let us begin by placing before ourselves, in both tabular and diagrammatic form, our typical demand and supply schedules combined into one. In the table, the common price is placed in the middle column, while the demands corresponding to the several prices appear in the first column, and the supplies in the third. The diagram in Figure 17 represents the supply rectangles superposed on those of demand in such a way that the boundaries of the rectangles which express demand and supply, respectively, at any particular price, coincide as far as their

Demand 000 *oz.*	*Price* *cents*	*Supply* 000 *oz.*
70	60	170
80	59	160
90	58	150
100	57	140
110	56	130
120	55	120
130	54	110
140	53	100
150	52	90
160	51	80
170	50	70

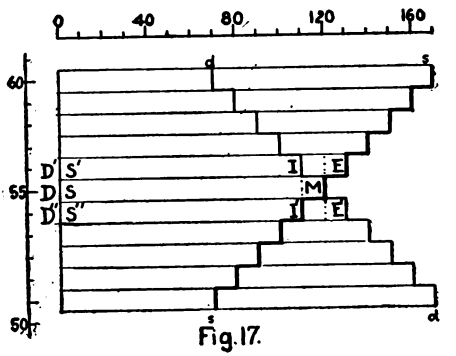

Fig. 17.

length will permit. To make it easy to distinguish at a glance the demand and supply rectangles, the right hand ends of the latter are traced in a heavy line. From these data, it is easy to discover how price is determined. First, as a glance at the diagram shows, the boundaries of demand and supply coincide at one and only one price. Secondly, this one and only one price at which demand and supply coincide, is the one which must tend to prevail. In proving this, we will show (1) that equilibrium

among the forces which influence prices cannot be established so long as actual price is above or below the equalizing price, and (2) such equilibrium *is* established when actual price coincides with the equalizing price.

First, then, equilibrium cannot be established with actual price above or below the equalizing price. Thus, let us suppose, in the first place, that price is *above*, say, at 56c. Could it remain there? Surely not. Sellers would have two reasons for bidding it down. (a) At 56c, the marginal increment of demand—represented by the small square marked M in the diagram—would disappear, reducing total demand from DM to D'I. But the sellers who are willing to take 55c need the whole of DM to absorb their supply. They will, therefore, bid price down to 55c in order to save the marginal increment of demand. (b) Again, if price went to 56c, the first extra-marginal increment of supply—marked E—would come in. But sellers at 55c could not afford to permit this; since their supply is already large enough to cover the whole demand, and, if a new supply came in, they would probably fail to dispose of some parts of their supply. They would therefore have a second reason for bidding price back to 55c. It is thus, evident that price could not remain at 56c. But, if this figure were too high, then 57c or 58c or anything above 56c surely would be too high; since the reasons for bidding price back to 55c would become more cogent with every cent which was added to the price. It follows, therefore, that price could not be *above* 55c.

But, now, let us suppose price to go, for a moment, *below* 55c, say, to 54c. Could this price stand? Surely not. Buyers who are ready to give 55c would have two reasons for bidding it back to their figure. (a) At 54c, the marginal increment of supply —represented as M in our diagram—would be withdrawn, reducing supply from SM to S"I'. But the 55c buyers want the whole SM to satisfy their demand. They will, therefore, bid actual price back to 55c in order to keep this marginal increment of supply on the market. (b) Again, if price went to 54c, even if supply did not fall off, the first extra-marginal increment of demand—marked E', in our diagram—would come in. But 55c buyers could not afford to permit this; since their own demand is large enough to cover the existing supply, and, in order to insure getting all offered, they would need to exclude the new demand and, hence, would need to bid price back to 55c.

Thus, price could not remain at 54c. But, if this figure is too low, 53c or 52c or anything below 54c would surely be too low. That is, the reasons for bidding price back to 55c would grow more cogent with every cent which was taken from price. It follows, then, that price could not remain either above or below 55c.

We have seen that actual price could not be kept either above or below 55c. Is there any reason to believe that it could stay *at* 55c,—that equilibrium would be reached at this point? Surely yes. When actual price is resting at this point, the two motives which might cause sellers to bid price down, and the two which might cause buyers to bid price up, have disappeared. First, since at 55c demand is as great as supply at 55c and hence as great as, or greater than, supply at any lower figure, sellers who are ready to sell at any lower figure will have no need to bid price down either (a) to increase demand or (b) to cut down supply. Secondly, since supply at 55c is as great as demand at 55c, and hence as great as, or greater than, demand at any higher price, 56c buyers will have no need to bid price up either (a) to increase supply or (b) to cut down demand.

It thus appears that, in the case of the demand and supply schedules under consideration anyhow, it is possible to find one price which is so situated that, at all prices below it, demand is excessive and, as a consequence, all those prices are shut out; which, secondly, is so situated that, at all prices above it, supply is excessive and, as a consequence, those prices are shut out; and which, finally, is so situated that, at this price itself, demand and supply are necessarily equal, and, as a consequence, equilibrium among the price-determining forces is reached,—all tendency to change disappears. This price, therefore, *might* be the actual price. Again, it is plain that, in the case of these schedules anyhow, there could be *but one* price which would fulfil these conditions; for the quantities in our two schedules are varying in the opposite directions, and, hence, having once coincided, would thereafter diverge more and more widely on either side of the coincidence price. It follows, therefore, that the particular price at which, in the case of these schedules anyhow, demand and supply are equal, must tend to be the actual price.

But, now, it hardly need be said that the conclusions reached from a study of the particular schedules which have been handled are not limited in their application to the case of those schedules; for said schedules are in all essentials typical. They are subject

to the two principal laws governing schedules, namely, (1) the law that demand schedules vary inversely as price, and (2) the law that supply schedules vary directly as price. Like those which we have considered, all typical schedules would show demand and supply boundaries which intersect at some price, and which, having intersected, thereafter more and more widely diverge; for the demand boundary of any pair would vary inversely as the price, while the supply boundary of that same pair would vary directly as the price. It follows, then, (1) that, given typical demand and supply schedules, there will naturally be one price and but one at which demand and supply are equal, and (2) that, under the free working of demand and supply, the price in question must tend to be the actual price.

Note: (1) The preceding discussion has seemingly established the general proposition that, for a given pair of demand and supply schedules of the standard type, there is one and but one price at which demand and supply are equal and that this equalizing price must tend to prevail. If, however, the student gets to experimenting with different schedules, he is quite likely to run across some which are so constructed that they show no single price at which demand and supply are equal. Thus, if we make a one-step alteration in one of our schedules, say the demand schedule, making this to read 60,000 ounces at 60c, 70,000 ounces at 59c, 80,000 at 58c, and so on, we should have a case of this sort. At 55c, supply would be 10,000 ounces in excess, and still more at higher prices; while at 54c, demand would be 10,000 in excess, and still more at lower prices. (See Figure 18, opposite page.) This case, however, is more difficult in seeming than in reality. In the actual world, buyers and sellers would simply reckon prices in a smaller unit, say ½c or ¼c or even ⅛c, instead of in 1c,—e. g., they would make bids at 54½ or 54⅜ or 54⅝; and, in this way, the excess of either demand or supply would almost certainly be eliminated. The student should remember taht, in using the schedules given in the text, he must *not* do this.

Demand 000 *oz.*	*Price* *cents*	*Supply* 000 *oz.*
60	60	170
70	59	160
80	58	150
90	57	140
100	56	130
110	55	120
120	54	110
130	53	100
140	52	90
150	51	80
160	50	70

(2) The statement just made is more particularly true when our schedules are in general of the regular type, that is, the type in which volumes of demand or supply vary with regularity,

inversely or directly as price. In the real world, as already pointed out, demand and supply schedules are commonly of less symmetrical form than those we have used; so that, as a matter of fact, we shall meet some cases where demand and supply, as we shall understand the terms, are never brought to exact equality. This is particularly true when we are studying normal prices, the prices which tend to prevail throughout some considerable period of time. However, the failure of these cases to show complete equality of demand and supply will be more naturally discussed when they are specifically before us for consideration.

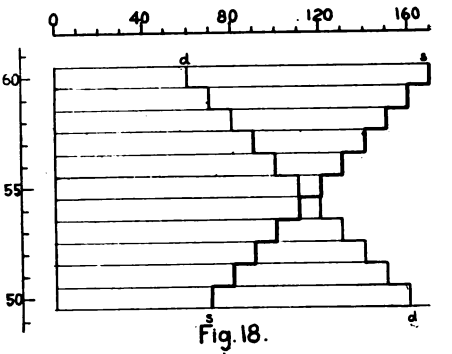

Fig. 18.

(3) The student should note that the equality of demand and supply at a given price does not in itself constitute the only, or even the chief, reason why that equalizing price tends to be the actual price. It does, indeed, furnish two reasons why actual price *may* be the one in question. First, since at said price supply equals demand, buyers have no longer any motive for bidding price up. Secondly, since demand equals supply, sellers have no longer any motive for bidding price down. But this is not enough. Though buyers have no motive, so long as supply equals demand, for bidding price up, sellers still wish to push it higher if they can; and, though sellers have no motive, so long as demand equals supply, for bidding price down, buyers always have a motive for bringing it down if they can. In consequence, we need some force or forces *to insure in a positive way* that price shall not go higher, on the one hand, nor lower, on the other. At this point we depend, not on the equality of demand and supply at the going price, but on *the inequality of these elements at other prices.* That is, actual price cannot be as high as a schedule price which makes demand smaller than supply, nor as low as a schedule price which makes supply smaller than demand. The proof is easy. As respects the case of demand's being smaller than supply, a given price may bring this about either by cutting down demand or by increasing supply. In either case,

sellers will certainly bid price down;—in the former to bring back the withdrawn demand, in the latter to exclude the new supply. As respects the case in which supply is made smaller than demand, a given price can bring this about either by cutting down supply or by increasing demand. In either case, buyers will certainly bid price up;—in the former to bring back the withdrawn supply, in the latter to exclude the new demand. It is thus evident that the inequality of demand and supply at *outside* prices constitutes an essential factor in driving actual price to a point where it coincides with that price which equates demand and supply.

(4) In view of all that has been said, it should hardly be necessary to add that we ought not to say that price is determined by the relation between demand and supply, unless we mean the relation between a *demand* schedule and a *supply* schedule. That is, the fixing of a price is not just a question of demand and supply at the price which proves to be the going one, but, rather, is a question of demand at several different prices.

We have seen that, given a certain pair of demand and supply schedules of the typical sort, there will usually be one and but one price at which demand and supply are equal, and this price will be the one which tends to prevail. We have next to remark on the effect on a price thus established of *changes* in demand or supply. First, supposing demand to *increase*,—that is, supposing the demand schedule to show increases at the several prices,—what effect on price would tend to appear?* Manifestly, we should expect some change in price under this new condition, since we are now dealing with an entirely new demand schedule. And what would that change be? How would the new price differ from the old? Plainly enough it would be higher; for the natural pull of demand is an upward one, while the natural pull of supply is a downward one. That is, we should now find the equilibrium price,—the price which shows equality of demand and supply,—higher up than it was in our previous example. Let us suppose that demand has advanced four steps, that is, that it is now 110,000 oz., instead of 70,000 oz. at 60c; 120,000 instead of 80,000 at 59c; and so on. (Demand Schedule D′ in table.) A glance at Figure 19, in which the new demand schedule is rep-

* If the increase in demand were confined to the price actually prevailing, that is, if it did not show at higher prices, actual price would not change, though the present price would be rendered unstable. That is, buyers at higher prices would temporarily lift price in order to insure getting their portion of the supply; but, as soon as they were satisfied, it would drop back.

resented by the line D'D', shows that the new price would necessarily be 57c; and that it must remain there could easily be shown

Demand 000 *oz.*			*Price* *cents*	*Supply* 000 *oz.*
Sch. D"	*Sch. D'*	*Sch. D*		
30	110	70	60	170
40	120	80	59	160
50	130	90	58	150
60	140	100	57	140
70	150	110	56	130
80	160	120	55	120
90	170	130	54	110
100	180	140	53	100
110	190	150	52	90
120	200	160	51	80
130	210	170	50	70

by reasoning similar to that used in our original argument. One possibly unexpected fact, however, should be noticed. The new

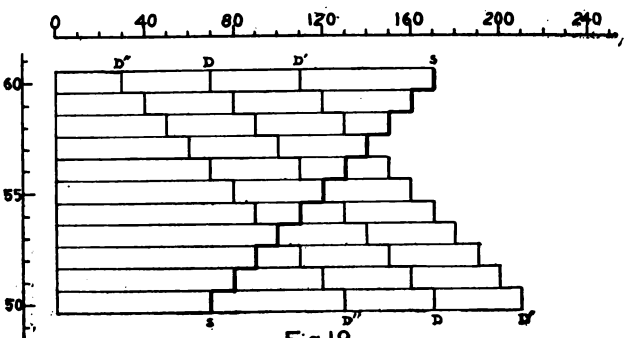

Fig.19.

price would be, not as we perhaps might expect, 59c, but only 57c; that is, while the demand schedule had risen four steps, price would have risen but two. The reason is plain. As price rose with the new demand schedule, it found the point at which demand and supply came to equality *two* steps up, in spite of the fact that demand had risen *four* steps; because, even with the old supply schedule unchanged, the supply was steadily increasing

with each rise in price. If, now, we summarize the results of this last analysis, we have to say that, if the demand schedule shows regular increases all along the line, price will naturally rise, though not proportionally.

What, now, would be the result if, instead of increasing, demand should diminish, i. e., should show decreases all along the line? (Demand Schedule D′ in Table.) I hardly need say that the result would be strictly analogous, though opposite, to the result just brought out in the case of an *increase* in demand.* (1) Price would decline under the new schedule. (2) However, the fall in price would not be proportional to the change in the demand schedule; since said decline in price would find in the old supply schedule a diminished supply at the lower figure, and, so, demand and supply would reach equality in half as many steps as the demand schedule had declined. These points are plainly brought out in Figure 19, in which the line D″D″ represents the new demand schedule. Again summarizing our results: If there takes place a general decline in the demand schedule, price will fall, though not proportionally. Finally, if we combine into one the two propositions with respect to demand just established, we may say that *a general change in the demand schedule will be followed by a similar, though not proportional, change in the level of price.*

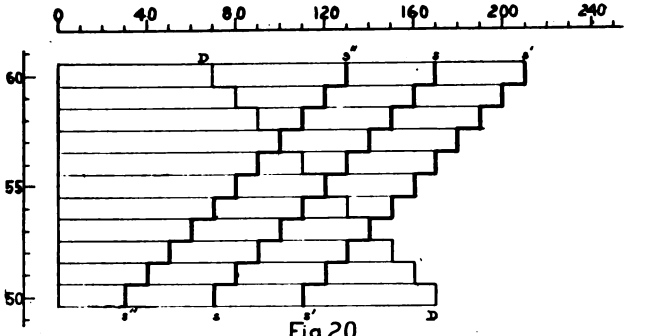

Fig.20.

We have seen that upward or downward changes in the de-

* As in the previous case, a change in demand confined to the market price would not tend to change that market price, save to the extent of making it unstable,—causing it to move down to 54c, then back again to 55c.

mand schedule will be followed by similar, though not proportional, changes in price. It hardly need be said that upward or downward changes in the supply schedule will usually be followed by *opposite* changes in price.* Thus, if the the supply schedule *rises four* steps, as in Figure 20, S'S', (Supply Schedule S' in table), price will *decline two* steps to 53c, since the necessary equality of demand and supply appears at this point when the new supply schedule is combined with the old demand sched-

Demand	*Price*	*Supply*		
000 *oz.*	*cents*	000 *oz.*		
		Sch. S	*Sch. S'.*	*Sch. S"*
70	60	170	210	130
80	59	160	200	120
90	58	150	190	110
100	57	140	180	100
110	56	130	170	90
120	55	120	160	80
130	54	110	150	70
140	53	100	140	60
150	52	90	130	50
160	51	80	120	40
170	50	70	110	30

ule. On the other hand, if the supply schedule *declines* by *four* steps,—S"S" in Figure 20,—(Supply Schedule S" in table), price will *rise two* steps to 57c; because equality of demand and supply appears only at this point.

We will now summarize all the points made in the preceding discussion in a formal principle known as the law of supply and demand.

Principle: The Law of Supply and Demand.

(a) *Given a typical demand schedule and a typical supply schedule, there will be one, and but one, price at which demand and supply are equal,—demand being in excess at prices below this and supply being in excess at prices above—; and, since price must tend to rise so long as demand is in excess and to fall so long as supply is in excess, actual price must move up or down until it coincides with the one price at which demand and supply are equal.*

* Here, as before, these changes must be general and not merely at the former price.

(b) *If there takes place in the demand schedule a general change up or down, a new price will be established through the interaction of the new demand schedule and the old supply schedule in the same way as the old price was established; and the new price will vary from the old in the same direction as the new schedule varies from the old, though not proportionally.*

(c) *If there takes place in the supply schedule a general change up or down, a new price will be established through the interaction of the new supply schedule and the old demand schedule in the same way that the old price was established; and the new price will vary from the old in the opposite direction from that in which the new supply schedule varies from the old, but not proportionally.*

Illustrative Problems.

1. "The price can not long remain above cost of production. For, so long as it is above, profits will be exceptionally high; this fact will cause production to increase; as a result supply will become . . . . . , and price will . . . . ."
Fill in the blanks, using the Law of Supply and Demand.

2. "The demand for wheat was increased beyond the capacity of the best lands to furnish it, and so a new supply was brought out by putting inferior lands under cultivation."
To make that reasoning quite complete, one or two other links should have been put in between the premise and the conclusion. Supply those links.

3. The table given below contains a section from a hypothetical supply schedule for silver and the corresponding sections from five different demand schedules.
(a) Interpret the supply schedule. (This is best done by beginning at the lowest prices.)
(b) What would price tend to be with Demand Schedule D? Prove.
(c) Show that price would be more or less unstable with each of the remaining demand schedules.

SUPPLY in mil. oz.	PRICE in cents	DEMAND in mil. oz.				
		SCH. A	SCH. B	SCH. C	SCH. D	SCH. E
290	59	185	190	205	217	205
290	58	190	203	218	230	218
290	57	200	218	230	248	230
260	56	209	230	245	260	245
260	55	225	240	258	275	275
198	54	230	255	270	290	290
175	53	239	275	290	315	315
175	52	246	290	310	330	330

4. Take the demand supply schedules for Milton's autographs and cordwood given on pages 177 and 188, and show what the price in each case must tend to be.

5. "Demand having increased, price rises. But this higher price cuts down demand; and so price comes right back to where it was in the first place."

Show that this result could not be reached in a normal case.

6. The high rate of exchange made exporting more than usually profitable. As a result, the supply of cotton for the foreign market . . . . . the price . . . ., this caused the foreign demand to . . . ., and so exports . . . . Fill out the blanks, applying the Law of Supply and Demand.

2. With Irregular Schedules.

Thus far in this section, we have discussed the determination of price through demand and supply on the hypothesis that our schedules are of the typical sort, regular and symmetrical. We have already noticed, however, that actual schedules are not always, perhaps not even usually, of this character. This applies even to immediate or market schedules, but is especially true of the schedules dealt with when we come to study normal price.

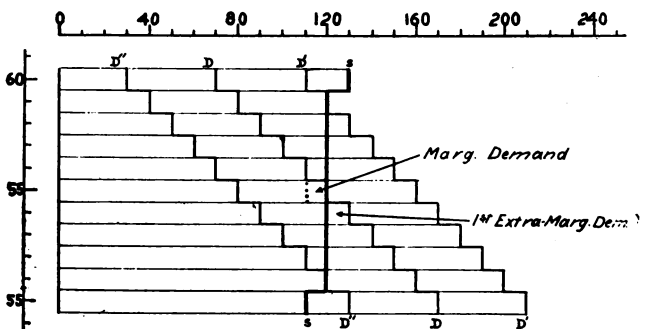

Fig. 21

i. e., the price which tends to be established throughout some considerable period. As a matter of fact, the working of the law of supply and demand is not materially modified in these particular cases; and they show comparatively few peculiarities. However, it is desirable to run over them briefly.

One of these cases to which we will give a moment's attention has a demand schedule of the regular type combined with

a supply schedule in which the volume of supply remains constant throughout a longer or shorter series of prices. Such

Demand 000 oz			Price cents	Supply 000 oz
Sch. D″	Sch. D′	Sch. D		
30	110	70	60	130
40	120	80	59	120
50	130	90	58	120
60	140	100	57	120
70	150	110	56	120
80	160	120	55	120
90	170	130	54	120
100	180	140	53	120
110	190	150	52	120
120	200	160	51	120
130	210	170	50	110

a case is represented in the accompanying table and Figure 21. A glance at the diagram shows that the law of supply and demand, as already given, applies with little or no qualification to this case. There is one price, and but one, at which demand and supply are equal; and that price must be the actual price. We may note, however, two or three peculiarities. (1) Only one of the two reasons why sellers must bid price down to 55 cents—namely their need to hold the marginal demand—is now operative. (2) Only one of the two reasons why buyers must hold price up to 55 cents—namely, their need to exclude the first extra-marginal demand—is now operative. (3) With every change in the demand schedule, there will now take place a change in price which is proportional to that of demand. That is, if the demand schedule should move up or down a certain number of steps, the price would move in the same direction *an equal number of steps*. Thus, if our demand schedule should advance four steps, as D′D′ in Figure 21, becoming 160,000 ounces wanted at 55 cents; 150,000, at 56 cents; 140,000 at 57 cents; and so on, price would advance 4 cents, that is, from 55 cents to 59 cents; whereas, under our original hypothesis, price would have advanced only 2 cents, that is, from 55 cents to 57 cents. (Compare Figure 21 with Figure 19.) Similarly, if the demand schedule should *decline* four steps, as D″D″ in Figure 21, the price would also

decline four steps; whereas, under our original hypothesis, price would have declined only two steps.

A second special case has a supply schedule of the usual type, but its demand schedule shows a demand which remains constant throughout a longer or shorter series of prices. To this, as to the preceding case, the general law of supply and demand applies,

Demand 000 oz	Price cents	Supply 000 oz		
		Sch. S	Sch. S′	Sch. S″
110	60	170	210	130
120	59	160	200	120
120	58	150	190	110
120	57	140	180	100
120	56	130	170	90
120	55	120	160	80
120	54	110	150	70
120	53	100	140	60
120	52	90	130	50
120	51	80	120	40
130	50	70	110	30

quite fully: there is one, and but one, price at which demand and supply are equal, and this price must tend to prevail. Again,

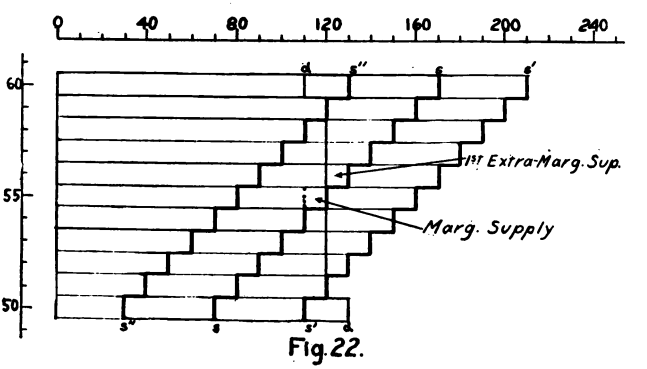

Fig. 22.

this case shows some peculiarities; and these are closely analogous to those of the preceding. (1) Only one of the two reasons why

sellers must bid price down to 55 cents—the *other one* this time —is operative. (2) Only one of the two reasons why buyers must bid price up to 55 cents—again the *other* one—is operative. (3) With every change in supply there will now take place a proportional change in price. That is, if the supply schedule moves up four steps, the price will move down four steps; if the supply schedule moves down four steps, the price will move up four steps; and so on; whereas, in our original case, a change in supply of four stages caused only a two-stage change in price. (Compare Figures 22 and 20).

A third special case, which deserves a little fuller treatment arises when *both* the demand and supply schedules show constant figures throughout a longer or shorter range of prices. Such a case is represented in the accompanying table and diagram, Figure 23. A glance at either shows that demand and supply will be equal *at any one of seven different prices*. This would seem to indicate that, as far as the law of supply and demand is concerned, any one of the prices indicated could prevail. Such is, of course, the case. There is nothing in the action of either buyers or sellers to hinder price from stopping at 58 cents or 57 cents or 56 cents or any other figure down to 52. The forces which tend to raise price are excess of demand or deficiency of supply; while those which tend to lower price are excess of supply or deficiency of demand. But, obviously, none of these forces are operative so long as demand and supply are equal. Under our present hypothesis, therefore, the particular price from among the seven named which actually prevails must be determined by some factor or factors *other than* supply and demand. Buyers and sellers will come to the market ready to take any one of the prices named; but buyers will, of course,

Demand 000 *oz*	*Price* *cents*	*Supply* 000 *oz*
110	60	140
120	59	130
120	58	120
120	57	120
120	56	120
120	55	120
120	54	120
120	53	120
120	52	120
130	51	120
140	50	110

be eager to have the lowest of the series prevail, while sellers will be eager to get the highest of the series. Where the price

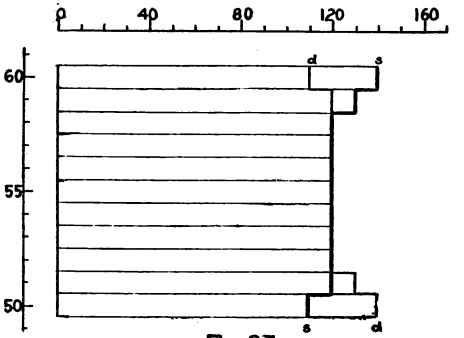

Fig. 23.

will actually settle will depend chiefly on the comparative bargaining power of the two parties.

ILLUSTRATIVE PROBLEM.

(a) In our last example what hinders price from going up to 59 cents?

(b) What hinders price from going down to 51 cents?

(c) If demand at 59 cents were changed to 110,000 and at 60 cents to 100,000, the rest of the schedule remaining as before, what would be the highest price which could prevail? What cause would hinder its going higher?

(d) Leave the demand schedule in its original form, but change the supply schedule so that at 58 cents supply is 130,000; at 59 cents, 140,000; and at 60 cents, 150,000, while the rest of the supply schedule remains unchanged. What would be the highest possible price? Why could it not go higher?

(e) Make similar changes at 53 cents, 51 cents, and 50 cents and answer the same questions.

(f) Leave the demand schedule in its original form, but change the supply schedule so that at 52 cents supply falls off to 110,000; at 51 cents, to 100,000; at 50 cents, to 90,000, and answer these questions. What would be the lowest possible price? Why could it not go lower?

There is one more of these special cases which we will remark on, viz. the case where the supply schedule is a *one-price* schedule. Such a case is represented in the accompanying table and diagram. Here, there is one price, 55 cents, at which an indefinite supply is forthcoming; while, at prices below that, none whatever is offered, and, at prices above, no increase takes place, since an

indefinitely great amount is not increasable.* Under the conditions given, price is bound to be 55 cents, whatever be the demand, if the commodity involved have any price at all,—i.e., if

Demand 000 *oz*				*Price* *cents*	*Supply* 000 *oz*
Sch. D‴	Sch. D″	Sch. D′	Sch. D		
150	110	70	30	60	00†
160	120	80	40	59	∞
170	130	90	50	58	∞
180	140	100	60	57	∞
190	150	110	70	56	∞
200	160	120	80	55	∞
210	170	130	90	54	0
220	180	140	100	53	0
230	190	150	110	52	0
240	200	160	120	51	0
250	210	170	130	50	0

it be produced at all. This is seen plainly in the diagram where the intersection of the supply boundary and the demand boundary is at 55 cents for each of our demand schedules, D, D′, D″, D‴;

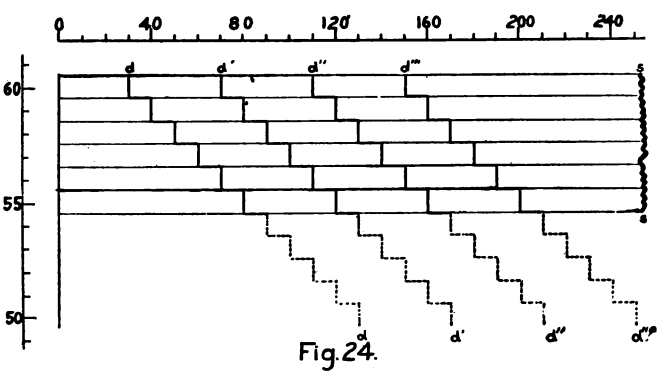

Fig. 24.

and it is plain that this price would be the point of intersection for any demand schedule whatsoever. The reason is plain: if price were below this figure, supply would disappear altogether,

* The student will remember that mathematical terms are not to be taken too literally in economic discussions.

† This sign is here used to signify, not infinity, but simply an indefinitely large amount.

and, therefore, buyers would be obliged to bid the price up to 55 cents in order to get any supply. On the other hand, since even at 55 cents supply exceeds demand, sellers are always in danger of losing their market to rivals, and, hence, must hold the price as low as possible to guard against this contingency, that is, they must hold it as low as 55 cents. Here we have a really important case where there is *no price at which demand and supply are just equal*,—that is, supply is by hypothesis always in excess of demand at the going price. The case, after all, offers no serious difficulty. While there is no *single* price at which demand and supply are equal, there is *a pair of prices* immediately adjacent to each other, at one of which demand is less than supply, while at the other, supply is infinitely less than demand—being zero. *Above* the upper member of this pair, actual price could not go; since demand at the higher price would experience a still further decline, thus compelling sellers to bid price down in order to keep the larger market. On the other hand, actual price could not go down to the second member of the pair; since supply would then disappear altogether, compelling buyers to bid up the price in order to insure getting any supply whatever. At bottom, then, this case is not so very different from the typical one. The price finally reached cannot be one at which demand just equals supply; but it must be one at which demand, though not as great as supply, is anyhow much greater than supply at the next lower figure. Or, differently expressed, the actual price, in this case, *must be the last or lowest of those prices at which supply is in excess of demand.*

Section E. **The Relation of Actual Price to Demand and Supply Prices.**

We have seen that, in general, the more immediate determination of price is effected through the Law of Supply and Demand. We now ask: Is it not possible, even in dealing with the immediate determination of price, to go a little deeper? Can we not discover some element or factor behind the equality of demand and supply which is determining, fixing, that particular price which has to be established in order to equate demand and supply? An affirmative answer to this question is surely inevitable. It is, indeed, more or less evident from our previous discussion that the equality of demand and supply at the going price is really little more than the condition which brings to an

equilibrium the deeper forces which are, in reality, the determining factors. More particularly, we can scarcely have failed to notice that *actual price has to come into certain quantitative relations with one or more of the various demand or supply prices*, i.e., the prices on which the forthcoming of particular increments of demand or supply is conditioned. It is along this line that we find those deeper determinants of price which become useful in our subsequent study. Accordingly, we will try to discover the relations between actual price, on the one hand, and the several demand and supply prices, on the other.

In carrying out the study proposed, we shall find it convenient to start with one of our cases of irregular schedules; and we will employ for this purpose that one in which both demand and supply remain unchanged through several changes in price. Under this case, again, we will start with a particular sub-case, namely one in which supply remains constant for one price higher than demand, while demand remains constant for one price lower than supply. Such a combined schedule is represented in Figure 25 and the accompanying table.

Demand 000 *oz*	*Price* *cents*	*Supply* 000 *oz*
80	61	150
90	60	140
100	59	130
110	58	120
120	57	120
120	56	120
120	55	120
120	54	120
120	53	120
120	52	110
130	51	100
140	50	90
150	49	80

A glance at the diagram shows that demand and supply are equal at each of five different prices; and, since the price-changing forces come to equilibrium whenever demand and supply are equal, there is no reason, outside the bargaining capacity of the buyer and seller, why any one of these five prices should not prevail. How, now, are the upper and lower limits of this possible price-variation under the same schedule to be fixed? An answer to this question will give us a complete list of the different elements or factors which may share in the actual fixing of price in any particular case, and, so, will take us a long way toward answering our main question. In the first place, it is obvious that the limits within which price can vary in the case now before us, are the

same as the limits within which demand and supply are equal. At 58 cents, demand becomes less than supply; while, at 52 cents, it becomes greater than supply. In consequence, these prices are excluded, as also, of course, any above 58 cents and any below 52 cents. But it is easy to go deeper than this. We have

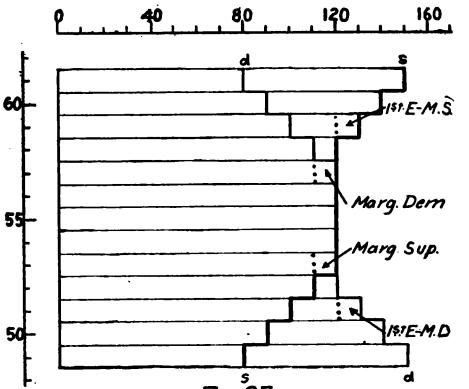

Fig.25.

already learned that sellers may have either or both of two motives for bidding actual price down to a particular point, viz., (1) to bring back a withdrawn demand, and (2) to exclude a new supply. In the particular case before us, the former motive is valid, but not the latter. That is, sellers have to hold price at 57 cents because, if it went higher, the marginal demand would be withdrawn; they do not have to hold it there because, if it went higher, a new supply would be forthcoming. It follows that, in this instance, 57 cents, *viewed as the price which is necessary to bring out the marginal increment of demand,* fixes the point above which price must not go. But 57 cents, viewed as the price which is necessary to bring out the marginal increment of demand, is *the marginal demand price.* Accordingly, *we have in the marginal demand price at least one upper limit to our range of possible price-variation.*

Let us turn, now, to the *lower* limit of price-variation for this case. At 53 cents we have equality of demand and supply for the last time, reading downward;—at any lower price demand will be in excess. This result buyers must shut out by keeping price up to 53 cents. Their reasons therefor *might* be either to bring back withdrawn supply or to exclude new de-

mand. As a matter of fact, the former is valid, but not the latter; the marginal supply depends upon a price of 53 cents, but the first extra-marginal demand would not come in till 52 cents was reached. In this case, then, the reason why price must not go below 53 cents is that this is *the price which is necessary to bring out the last increment of supply.* But the price so characterized is *the marginal supply price.* Accordingly, *we have at least one lower limit to price-variation in the marginal supply price.*

But, now, let us make a slight change in our schedule, fixing things so that demand will be constant one price higher than supply and supply constant one price lower than demand. This joint schedule is represented in Figure 26 and the accompanying table. A glance shows that, as before, price may be anything between 53 cents and 57 cents inclusive. But the elements which determine the limits above and below are different from those which determined said limits in the former case. In this case, the motive impelling sellers to bid price down to 57 cents is not to bring back a withdrawn demand, for there would be none, but to exclude the new supply which would be forthcoming if price reached 58 cents. In other words, sellers must not permit price to go to 58 cents *because that price conditions the coming in of the first extra-marginal supply.* But a price which conditions the coming in of the first extra-marginal supply is *the first extra-marginal supply price.* It follows, then, that, in the case before us, the first extra-marginal supply price sets an upper limit to actual price, in the sense of a limit to which actual price *must not go.* Accordingly, combining our two cases, we say that the upper limit of price-variation is, or may be, fixed by *either or both of two factors or moments*: (1) the marginal demand price and (2) the first

Demand 000 *oz*	*Price* *cents*	*Supply* 000 *oz*
90	61	160
100	60	150
110	59	140
120	58	130
120	57	120
120	56	120
120	55	120
120	54	120
120	53	120
130	52	120
140	51	110
150	50	100
160	49	90

extra-marginal supply price. *Above* the former, price must not go; *to* the latter, price must not go.

Turning to the lower limit, we see that, as with our first schedule, that limit must be 53 cents. But here, again, the motive impelling buyers to keep the price up is different from what it

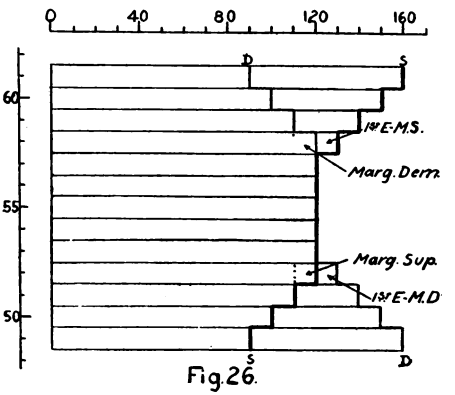

Fig. 26.

was before. With our first set of schedules, they could not let price go below 53 cents because this price was necessary to keep on the market the marginal supply. With the new pair of schedules, they cannot let actual price go below 53 cents because the next lower price, 52 cents, is the price which conditions the forthcoming of the first extra-marginal increment of demand. But the price which conditions the forthcoming of the first extra-marginal increment of demand, is, by definition, *the first extra-marginal demand price.* Consequently, *actual price must not go down to the first extra-marginal demand price.* Thus, with the lower limit as with the upper limit, we have two possible limiting factors or moments: namely, (1) *the marginal supply price* and (2) *the first extra-marginal demand price*: *below* the former, price must not go; *to* the latter, price must not go.

The preceding discussion has shown that there are two possible determinants of each limit of price-variation. It is scarcely necessary to add that *both* of these may participate in the fixing of said limit. A slight change in either of the two schedules just used would give us such a case. That is, if we suppose the constancy of demand and supply to terminate at the same point above and below, price would be hindered from going

higher, both because it would then go *above* the marginal demand price and because it would go *to* the first extra-marginal supply price; while, on the other hand, price would be hindered from going lower, both because it would then go *below* the marginal supply price and because it would then go *to* the first extra-marginal demand price.

Again, it is hardly necessary to say that, if our limiting determinants do not in a particular case fix the same price, the one of the two possible determinants which is operative is the one which would fix the *inside* price, that is, the price which lies on the side toward the other limit. Thus, in Figure 25 the first extra-marginal supply price would allow actual price to go to 58 cents; but the marginal demand price would allow it to reach only 57 cents; and, so, the latter fixes the actual limit. On the other hand, in Figure 26, the marginal demand price would permit actual price to go up to 58 cents; but the first extra-marginal supply price would permit it to reach only 57 cents; and, so, the latter sets the actual limit. Analogous statements could be made with respect to the determinants of the lower limit in both of these cases.

For our convenience in making future references to the points brought out in the above discussion, let us summarize them in a formal statement.

Principle. (a) *If the demand and supply schedules are of the regular sort,—the one showing quantities which vary inversely as price, the other showing quantities which vary directly as price,—then, on the one hand, price cannot go above the marginal demand price nor up to the first-extra-marginal supply price, and, on the other hand, price cannot go below the marginal supply price nor down to the first extra-marginal demand price.*

(b) *In any particular case, both members of either the upper or the lower pair of determinants may concur in fixing the same limit, and, hence, may both be effective determinants of price in that particular case.*

(c) *If both members of either pair do not concur in fixing the same limit, the one which lies inside, that is, on the side toward the other limit, is decisive.*

Note: In one class of cases, single-price supply schedules, the marginal supply price and the first extra-marginal supply price necessarily coincide:—the marginal increment of supply and the first extra-marginal one are both forthcoming at that same price.

In this case, therefore, we have to say that actual price can not go below *nor above* the single supply price.

Case I.

We have learned from the preceding analysis, that, in laying down the principles which regulate price-determination, we do not have to content ourselves with saying that actual price must remain within the range of prices at which supply and demand are equal, we can go on to find deeper factors, elements, which separately or jointly fix the limits within which price must range, viz., the marginal demand price and first extra-marginal supply price, for the upper limit, and the marginal supply price and the first extra-marginal demand price, for the lower limit. Let us go on, now, to see how these deeper determinants of actual price work out in the more important cases which we have studied. First, let us take the case wherein supply is fixed while demand varies in the regular way, that is, inversely as price. We will call this Case I. Such a schedule is represented in Figure 27, the sup-

Demand 000 oz					Price cents	Supply 000 oz
Sch. D''''	Sch. D'''	Sch. D''	Sch. D'	Sch. D		
20	120	50	90	70	60	140
30	130	60	100	80	59	130
40	140	70	110	90	58	120
50	150	80	120	100	57	120
60	160	90	130	110	56	120
70	170	100	140	120	55	120
80	180	110	150	130	54	120
90	190	120	160	140	53	120
100	200	130	170	150	52	120
110	210	140	180	160	51	110
120	220	150	190	170	50	100

ply schedule being marked SS and the demand schedule now under consideration DD. Supply is 100,000 ounces at 50 cents; becomes 110,000 at 51 cents; then 120,000 at 52 cents; remains at this figure through 53 cents, 54 cents, and so on up to 58 cents; becomes 130,000 at 59 cents; and so on. Combining this supply schedule with demand schedule DD, price plainly must be 55 cents, the only price at which demand and supply are equal. Which ones, now, of our *four* demand or supply price-deter-

minants fixes this price of 55 cents? Is it the marginal demand price or the first extra-marginal supply price or both which

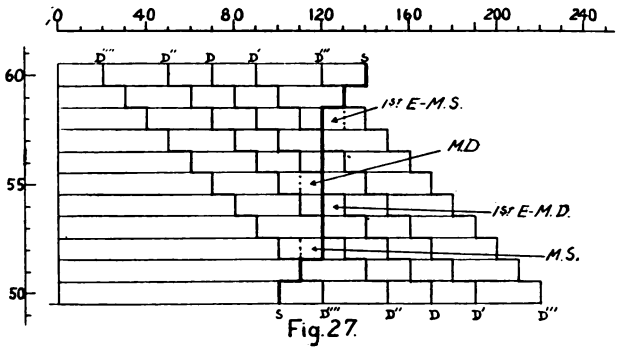

Fig. 27.

keep actual price from going up to 56 cents? Is it the marginal supply price or the first extra-marginal demand price or both which keep actual price from going down to 54 cents? As respects the first question, the answer is plain: the marginal demand price stops actual price from going up to 56 cents; the first extra-marginal supply price has no part in the matter. The marginal demand price is operative, since sellers cannot allow actual price to go above 55 cents because this would cut down demand by the 10,000 ounces which came out only because price fell to 55 cents. On the other hand, the first extra-marginal supply price has no part in the matter; for it is 58 cents, a figure several points above the lowest price which is shut out, i.e., 56 cents. The second question, which of our two determinants hinders price from going down to 55 cents, is equally easy to answer. The first extra-marginal demand price does the work, while the marginal supply price has no part in the matter. The first extra-marginal demand price is certainly operative; since 55 cent buyers cannot allow price to go down to 54 cents, lest this price should bring in 10,000 ounces of new demand. On the other hand, the marginal supply price has no part in the matter; for it is too low to be operative, being only 52 cents, while price is stopped by something else from going down even to 54 cents. In the case before us, therefore, it is *demand prices only* which determine actual price, —supply prices do not directly share in the process.

Note: (1) This point, that, in the case under consideration,

the determination of actual price is left to demand prices, may be effectively brought out in another way, namely, by substituting for our original demand schedule one of the other demand schedules represented by D'D' and D"D". As a result of either of these changes, price moves up or down just the same number of steps as does the demand schedule, and each time coincides with the new marginal demand price and remains above the new first extra-marginal demand price, although the marginal and first extra-marginal supply prices remain all the time unchanged,—that is, remain all the time 52 cents and 58 cents, respectively.

(2) This setting up of demand prices as the only direct determinants of actual price must not be understood to mean that supply prices have absolutely no part in the matter. If supply remains constant through only a short range of prices, then supply prices are influencing price-determination in the sense that they are in the background setting limits to the range within which actual price can follow the marginal demand price without being influenced by supply prices. This comes out clearly if we keep on changing the demand schedule indefinitely. Thus, if we raise our demand schedule to D"'D"' which is five steps above DD, price does not advance five steps, but only four, and that because a new marginal supply price has been brought out by the change and proceeds to exert its influence on price.

From the above discussion we have learned that, in the case before us, price-determination is in the control of demand prices, and, in particular, that actual price must not be above the marginal demand price nor as low as the first extra-marginal demand price. But, since these two are in immediate juxtaposition, it is enough to say that actual price must coincide with the marginal demand price. Formulating the points made, we have the following:

Principle. *If a particular commodity has a supply schedule which remains constant through a series of prices, while its demand schedule is of the typical variety, wherein demand varies inversely as price, and if the price at which demand and supply are equal lies within the range of constant supply, actual price must tend to coincide with the marginal demand price, without being influenced by supply prices.*

Case II.

We have just considered a special case of price-determination in which the decisive factor is demand price,—supply prices having no part in the immediate processes. We now take up certain cases of just the opposite kind, that is, cases in which

supply prices are the determining factors,—demand prices being inoperative. The most natural one of these to introduce the matter is perhaps the one which reverses the conditions of the case we have just considered, that is, the case in which demand remains constant while supply varies in the usual way. Such a schedule appears in the accompanying table. Here it is plain that with Schedule S, actual price must be 55 cents. But why? What hinders actual price from going up to 56 cents or down to 54 cents? First, it is easy to see that unlike the preceding case, the upper limit of price is not being influenced by marginal demand price—the factor which determined the matter in the preceding case. For the marginal demand price is in this case 59 cents; so that, if it were fixing actual price, that price might go 4 cents higher than the point which it actually can reach. But, secondly, it is equally evident that the upper limit *is* being influenced by the first extra-marginal supply price. That is, actual price could not go above 55 cents for the reason that it would bring it to the first extra-marginal supply price, 56 cents, hence would let in a new supply,—a result which 55 cent sellers must not permit, since they need the whole demand to carry off their supply.

Demand 000 oz	Price cents	Supply 000 oz				
		Sch. S	Sch. S′	Sch. S″	Sch. S‴	Sch. S⁗
100	60	170	190	150	120	220
110	59	160	180	140	110	210
120	58	150	170	130	100	200
120	57	140	160	120	90	190
120	56	130	150	110	80	180
120	55	120	140	100	70	170
120	54	110	130	90	60	160
120	53	100	120	80	50	150
120	52	90	110	70	40	140
130	51	80	100	60	30	130
140	50	70	90	50	20	120

Turning now to the causes which hinder price from going below 55 cents, we again find that demand prices no longer play any part,—supply prices completely dominating the situation. That is, price is not held up to 55 cents because otherwise it would strike the first extra-marginal demand price; for the first

extra-marginal demand price is, in the case before us, 51 cents only, so that, if this factor were determining the matter,

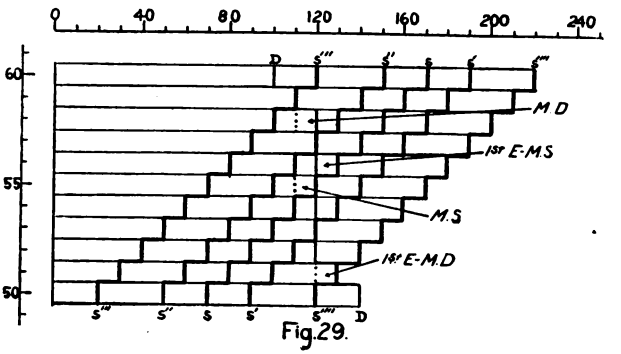

Fig. 29.

price would not be stopped at 55 cents but could go down even to 52 cents. Marginal supply price, however, *is* setting a lower limit. That is, actual price must be as high as 55 cents because this is the price which is necessary to retain the marginal supply.

This point, that in the case before us *only supply* prices are directly concerned in price-determination,—demand prices having no part in the matter,—may be effectively brought out by changing our supply schedule and noting the effect on price. Thus, S'S' represents an increase in supply of two degrees, while S"S" represents a falling-off of two degrees. In both cases, the marginal supply price changes as many steps as the supply schedule, and *actual price changes exactly with said marginal supply price;* while, on the other hand, the marginal demand price and the first extra-marginal demand price remain exactly the same as before, namely, 59 cents and 51 cents respectively. Actual price, therefore, *follows marginal supply price and nothing else.*

Note: This is true, of course, only so long as we are within that series of prices for which demand is constant. If the supply schedule becomes S"'S"' or S""S,"" supply prices again come to have a part in determining price. Further, the marginal demand price is always in the background helping to fix *the general limits within which actual price can range.*

The preceding analysis has shown that, in the case before us, supply prices only, and two particular ones of these, have the determining of actual price; and, since these two supply prices

are in juxtaposition, it follows that, in constructing a formula for the case in hand, we might say either (1) that actual price tends to coincide with that supply price which is just below the first extra-marginal supply price or (2) that actual price tends to coincide with the marginal supply price. Of these two methods of statement, the second is obviously preferable and gives us the following:

Principle. *If the schedule shows a constant demand through that part which includes the price which equalizes demand and supply, while the supply schedule is of the typical form, varying directly and regularly with price, then the actual price will necessarily coincide with the marginal supply price, though it may be quite different from the marginal or first extra-marginal demand prices.*

Case III.

A much more important case wherein actual prices are determined by supply price without reference to demand price, is furnished by goods showing a *single supply price.* This case was discussed on page 207; and it was there shown that actual price must coincide with the lowest of the prices at which supply exceeds demand. But our present point of view gives us a much more useful formula for this case. The lowest of the prices at which supply exceeds demand, and hence the one with which actual price must coincide, i. e., 55c, is the marginal supply price. Stated more exactly, it is *the* supply price; since, in the case before us, there is but one price which conditions the forthcoming of supply, and so the distinction of *marginal* supply price is not valid. Accordingly, in the case before us, actual price must coincide with supply price anyhow. But, further, this statement by itself completely covers the case,—*we can properly ignore demand prices altogether.* If the commodity in question is bought and sold at all, i. e., if it has any price whatever, that price will be one which *coincides with supply price, whatever be the marginal or first extra-marginal demand price.* The truth of this proposition follows necessarily from the conditions involved. As pointed out on page 212, in cases of this sort, the marginal supply price and the first extra-marginal supply price necessarily coincide, so that actual price cannot go below or above the single-supply price. But, obviously, this fact necessarily fixes actual price *at just one point: it cannot be different.*

But, if actual price must coincide with a particular price not derived from the demand schedule, then demand prices as such cannot share in determining said actual price; and, if any one of them, e.g., marginal demand price, does coincide with actual price, this must be because demand price has adjusted itself to an actual price already determined by the single supply price. Something like this is constantly happening in the real world. Thus, Portland cement is being put on the market at, say, $4 a barrel, and the lowest use to which it is put is a $4 use, thus making its marginal demand price $4. Presently it is put on the market at $3.50 a barrel, whereupon it begins to be put to uses where the buyers can afford to pay just this sum,—and so its marginal demand price becomes $3.50. So, again, its price falls to $3, whereupon there is another extension of its use, another lowering of its demand price to the figure already determined on the market. And this process continues as long as there is any decline in the single supply price.

This point can be effectively brought out by showing that, in the case of constant-cost goods, we can make a slight change in our demand schedule such that both the marginal demand price and the first extra-marginal demand price are decidedly altered and yet have actual price remaining just where it was. Thus, in

Demand 000 *oz.*					*Price* *cents*	*Supply* 000 *oz.*
Sch. D''''	*Sch. D'''*	*Sch. D''*	*Sch. D'*	*Sch. D*		
70	70	70	70	70	60	∞
80	80	80	80	80	59	∞
80	90	90	90	90	58	∞
80	90	100	100	100	57	∞
80	90	100	110	110	56	∞
80	90	100	110	120	55	∞
80	90	100	110	130	54	0
80	90	110	130	150	52	0
80	90	100	120	140	51	0
80	100	120	140	160	51	0
90	110	130	150	170	50	0

Figure 31 let DD represent the demand schedule which is of the ordinary sort, while SSS represents the supply schedule—the commodity being one which is not marketed at all under 55c,

but will be supplied in indefinite amount at 55c or above. Plainly, in this case price must be just 55c, the marginal supply price.

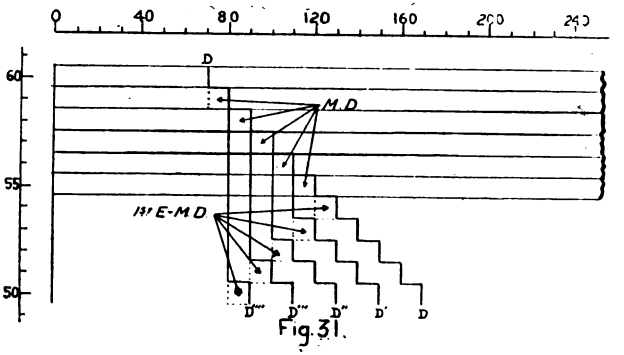

Fig. 31.

But is not 55c also the marginal demand price? Yes, but that fact has no part in determining price. If we suppose that demand experiences no increase from 56 to 53c, making DD′ the demand schedule, or no increase from 57 to 52c, making DD″ the demand schedule, or none from 58c to 51c, making DD‴ the demand schedule, or finally none from 59c to 50c, making DD⁗ the demand schedule, still actual price would remain unchanged throughout our experiment at just 55c, although the marginal price had been changed to 56c, to 57c, to 58c, and to 59c in succession, and the first extra-marginal demand price had been changed to 53c, 52c, 51c, and 50c in succession. In short, the coincidence of actual price with the marginal demand price *was not cause but effect.* The price was bound to be 55c anyhow. If there were any demand which was valid only at 55c, it could be satisfied just because actual price would become 55c; but it would have no part in making the actual price 55 cents.

Putting the point of the above discussion into formal shape, we have the following:

Principle. *If the schedule of any commodity is of the type which has a single supply price, then actual price must tend to coincide with said supply price without being affected by demand prices,—provided always that actual price can never remain above the marginal demand price.*

Case IV.

To the special cases which have now been considered, it would be easy to add several others. But it is probable that we have already pushed this analysis further than is profitable. We will, therefore, finish with it by returning to our original case wherein both demand and supply schedules are of the typical sort, and asking: What have demand and supply prices to do with determining actual price in this particular case? The answer is easy. Turning to the schedule and diagram given on page 191, a moment's reflection will convince us that both members of the pair of determinants which can set the upper limit of price-variation and both members of the pair which can set the lower limit of price-variation are operative. That is, actual price cannot go above 55c, both because this is the marginal demand price and because the next higher one is the first extra-marginal supply price. So, actual price cannot be below 55c, both because this is the marginal supply price and because the next one lower is the first extra-marginal demand price. That is, in the case before us, actual price is bound to fulfil four conditions, (1) not to be above the marginal demand price, (2) not to be below the marginal supply price, (3) not to be up to the first extra-marginal supply price, and (4) not to be down to the first extra-marginal demand price. But, since, in the case of the typical demand and supply schedules, a price which fulfils the first two conditions will necessarily fulfil the third and fourth, we may omit the latter and say that actual price must fulfil the first two conditions. Putting the point brought out into formal shape, we have the following:

Principle. *If both the demand and supply schedules of any commodity are of the typical sort, showing a demand which varies inversely with price and a supply which varies directly as price, then actual price must coincide at once with the marginal demand price and the marginal supply price.*

Note: If we keep in clear consciousness the fact that, in coinciding with either of the quantities named, price necessarily coincides with the other, we may ignore either of these two determinants and say that actual price must coincide with the marginal demand price, or that actual price must coincide with the marginal supply price. Neither of these methods of expression, however, commends itself to the writer.

CHAPTER IX.

NORMAL PRICE.

In introducing the last chapter, it was explained that our study of price-determination was to be divided into three parts according as it was concerned with the immediate, the intermediate, or the ultimate stages of price-determination. The first of these stages has already been covered. In the present chapter, we take up the second. The necessity for a separate treatment of these two stages can perhaps be most easily brought out by means of an illustration. Something like 20 years ago, the bicycle was in process of evolution as a means of locomotion. At that time, the price of any machine which was thought worth buying was in the neighborhood of $100 to $125. That this price was more or less fully the result of the natural working of the laws of price which were considered in our last chapter, there can be no question. Anyhow, said price was doubtless one which brought demand and supply into approximate equality. It is equally certain, however, that the price in question was believed by all well-informed persons to be something quite *temporary* in character. Prospective buyers with lean pocketbooks or with more than the usual amount of prudence and patience confidently expected and waited for a decided fall in price. "The present price," said they, "is plainly abnormal; for the cost of producing a good bicycle is not far above $30. Doubtless for the time being various causes may enable producers to hold the price up to $100; but this cannot last many years against the downward pull of a $30 cost." These supposed remarks of a bicycle buyer of 1893 suggest the chief reason for distinguishing between the study of the immediate processes of price-determination which occupied the last chapter and the study of deeper processes which is to occupy this chapter. That is, our present problem asks: What are principles which are determining this price which everyone expects to be established in the long run—the *normal* price—, although everyone is aware that, for the time being, a different price is being established by supply and demand? Let us now address ourselves to the au-

swering of this question;—in other words, let us seek to ascertain the principles governing Normal Price.

What is meant by this phrase, "normal price," is probably by this time fairly evident. However, a specific statement on this point is desirable. By normal price we *mean a price which is always tending to prevail during a given period as a result of the action of those forces which operate throughout the period, especially the larger of those forces.* From this definition it may be inferred that normal price, though always tending to prevail, seldom if ever does prevail because of the interference of temporary causes. Accordingly, normal price is often defined as *the price toward which actual price constantly gravitates,* or about which actual price constantly oscillates, though the two seldom, if ever, coincide.

Note: Normal price does not mean average price. The latter is a mere arithmetic concept. The two *might* coincide quantitatively; but it is probable that they seldom do. In any case, the two terms differ radically in their meaning or connotation.

Section A. **Normal Price and the Law of Supply and Demand.**

One of the first matters to be emphasized in connection with normal price is that the law of supply and demand already presented still governs the immediate determination of price. By this I mean that, in so far as the permanent forces have power to create a tendency for some particular price to prevail, they have this power because they have the power to determine in greater or less degree the immediate demand or supply schedule. Thus, the fact that a cost price of 30 cents each for a particular wooden chair tends to establish a normal price of 30 cents for that chair, is to be explained by the fact that the cost's being 30 cents has the power so to influence the supply schedule for these chairs that, every time the price goes above or below 30 cents, a tendency is established to pull it back to that point *under the natural working of the Law of Supply and Demand.*

But, again, it is to be noted that the law of supply and demand dominates normal price in a deeper sense than the one just indicated. In the first place, it is certain that, besides the immediate demand and supply schedules which at any moment prevail, there are long-time or *normal demand schedules* and long-time or *normal supply schedules* covering the whole period which is under consideration. Thus, if we suppose the immediate demand schedule for silver on a particular day in 1907 to have

been 20,000 ounces, if price were 60c; 22,000, if 59c; 25,000, if 58c; and so on, there must also have been a schedule for the *whole year* 1907, a schedule which might have read something like this: 260,000,000 ounces wanted, if price were 60c; 275,000,000, if it were 59c; 290,000,000, if 58c; and so on. Similarly, alongside the immediate supply schedule showing what quantities dealers stood ready to sell at the several different prices on that same day in 1907, there must also have been a supply schedule for the whole year, a long-time schedule on a much larger scale showing what quantities dealers would have been ready to supply at the several prices during the whole year, supposing conditions unchanged. In the second place, it is not only certain that such normal, long-time, demand and supply schedules exist, it must also be true that the price which is actually tending to be established all through this period,—the normal price,—is determined by the relation between these long-time or normal demand and supply schedules. Thus, if we suppose that the schedules for silver given on page 191, represented the long time supply and demand conditions for that metal, rather than the immediate ones, then we should have to suppose that the price which these schedules would naturally have established, that is 55 cents, would have tended to be *the normal price* for the period under consideration; just as, in the example given, it proved to be the price which tended to be the *market price* for the particular day when those schedules were effective. With these long-time schedules, as with the market schedules, there would be just one price at which demand and supply were equal; and, under the normal working of economic forces, this one price would tend to be established. It is certain, therefore, that, in undertaking our deeper study of price, we are not leaving *behind* the law of supply and demand, but merely bringing out forces and processes which lie a little deeper.

Section B. The Classification of Commodities from the Standpoint of Normal Price.

We have now reached a point where our investigation cannot be further developed advantageously except by dealing with commodities in classes. That particular classification which experience has shown to be most useful for our present purposes divides economic goods into two main divisions: (1) **fixed-supply goods** and (2) **variable-supply goods.** By the former are meant those goods which show substantially the same supply

all the time;—either the amount offered literally does not change throughout the period under consideration, or it changes so slightly that, in view of the great volume of demand, its changes are negligible,—supply is, in effect, fixed, unchanging.* By variable-supply goods, on the other hand, we mean just what the name implies; that is, the supply shows substantial, material, changes in response to changes in the price level, usually increasing as price rises, diminishing as price falls, though sometimes acting in a reverse way.

Taking up, first, fixed-supply commodities, we note as one of the most typical of these some good which is non-producible—man can not make it—and which is at the same time substantially *indestructible*—man *can* not destroy it or anyhow, acting normally, *will* not. Among the most important goods of this class are the *uses of land* or *land itself*. Within the area of any city there are just so many sites of a particular grade. Broadly speaking, no human action can increase or diminish their number. In the long run, they will all be offered for rent. In the long run, therefore, the supply at the best price which can be had will be the whole number existing, say 10. That is, owners will see that all the sites are rented (remember that there is supposed to be competition) even if they have to take $1 a year. Accordingly, a section of the ultimate supply schedule for these sites will run as follows: 10 offered at $2,000; 10 offered at $1,900; 10 at $1,800; 10 at $1,700; 10 at $1,600; 10 at $1,500; and so on.

Another sort of fixed-supply good is something produced by persons who are no longer living, e. g., pictures by Raphael, autographs of Milton, etc. The ultimate supply schedule of such a commodity would obviously be similar in form to the one just given; *i. e.*, the supply figure would include the total stock and so would be the same for every price.

But *producible* goods may also furnish us cases of fixed-supply goods. Thus, if a certain article, *e. g.*, a hat, goes out of style while there is still a considerable stock in existence, then all of this stock inevitably passes into the status of supply; and the supply schedule shows the same figure at every price. Thus, if there were 10,000 of such hats, the supply schedule would run: 10m offered at $5; 10m offered at $4.50; 10m at $4; 10m at $3.50; 10m at $3; and so on.

* This case will be explained more fully in a moment.

Producible goods furnish another case of fixed-supply goods, if we are seeking a formula for the normal value of some periodically produced commodity, *e. g.*, wheat, *for the interval between two harvests.* Here substantially the whole stock is bound to be disposed of during the period and so is bound to pass into the status of supply. Hence the supply schedule for the period as a whole would run (supposing 2 billions to be the output) 2 bil. offered at $1.50; 2 bil. at $1.45; 2 bil. at $1.40; 2 bil. at $1.35; and so on.

But *producible* goods may also furnish us cases of fixed-supply in certain products the annual output of which is substantially fixed, in that because of the intensity of demand, on the one hand, and our very limited capacity to produce the commodity involved, on the other hand, *production is bound to be carried to a point beyond which no appreciable addition to output is possible.* As it sounds rather paradoxical to call any case of producible goods one of fixed-supply, and as the matter is of theoretic importance, we will consider this case somewhat carefully. First, let us suppose that there is a certain very greatly esteemed brand of tea which can be raised only on a very small tract of ground situated in one of the provinces of China; and let us suppose that the output schedule of this brand of tea for an ordinary year is as represented in the accompanying table.—that is, (1) at costs under 50 cents, no tea will be produced; (2) while cost ranges from 50 cents to $2, output will show material increases with every rise in price; and (3) after the $2 point has been passed, though increases take place, they are so small as to be practically negligible. Given such a schedule, it is plain that the proper classification of the commodity involved *will depend on what part of this schedule we are interested in.* If our interest is for a good reason limited to the range from 50 cents to $2, we should properly describe this tea as an increasing-cost commodity. If, on the other hand, we are concerned with the range from $2 on, we should properly treat this tea as a constant-cost commodity. But what, now, determines in what part of this schedule our interest really lies? The answer surely is that this is all a question of the volume of demand. If the demand schedule were correctly represented by Schedule D′ in our table (D′D′ in the diagram), our interest would be entirely in the range from 50 cents to $2,—since the price which would tend to prevail would lie within this range; and, hence, the tea would properly be classified as an increasing-cost com-

modity. On the other hand, if the demand schedule were correctly represented by Schedule D in our table (DD in the dia-

Tea.

Demand			
Sch. D' pounds	Sch. D 000 lbs	Price $	Supply lbs
0	3	500.	11,683.888
0	5	450.	11,683.885
0	6	400.	11,683.88
0	8	350.	11,683.87
0	10	300.	11,683.85
0	12	250.	11,683.8
0	13	200.	11,683.5
0	15	150.	11,683.
0	18	100.	11,682.
0	25	50.	11,680.
5	40	25.	11,675.
50	60	10.	11,650.
500	100	5.	11,600.
1,000	120	4.	11,500.
2,000	160	3.	11,350.
4,500	180	2.50	11,100.
6,000	200	2.	10,800.
7,000	500	1.75	10,500.
8,000	700	1.50	9,900.
9,000	1,500	1.25	9,000.
12,000	3,000	1.	7,700.
20,000	10,000	.75	6,000.
50,000	15,000	.50	4,000.

gram), our interest would be entirely in the range above $2,—since the price which would tend to prevail lies within this range—; and, hence, under this second hypothesis the tea would properly be classified as a constant-cost commodity.

Note(1) : The contrast between the two hypotheses is strikingly brought out by a comparison of the two diagrams appearing on the next page. In Figure 1, we have a diagram showing only the lower part of our supply schedule combined with a very modest demand schedule (D' D' of our table),—the price scale having a large unit. Under these conditions, the supply boundary is of the typical sort, moving to the right as it moves upward,—

i. e., the supply schedule is an increasing-cost schedule and the supply price surely plays a part in determining actual price. In Figure 2, on the other hand, we have a diagram showing a much larger portion of the supply schedule combined with a demand schedule in which the quantities are very much larger, for the same prices, than before,—the price scale unit being much smaller. Here the important part of the supply boundary is substantially vertical as in Figure —, Page —, showing that the supply schedule is in effect one of the fixed-supply variety. Putting the results of this discussion into general terms, we may say that, *if, in the case of a particular commodity, the conditions of production are such that, after a certain point has been reached, only very insignificant additions to output can be made, and if the demand for that commodity at prices corresponding to those costs under which any considerable output can be produced is far in excess of possible output, then said commodity, though producible, is properly described as a fixed-supply commodity.*

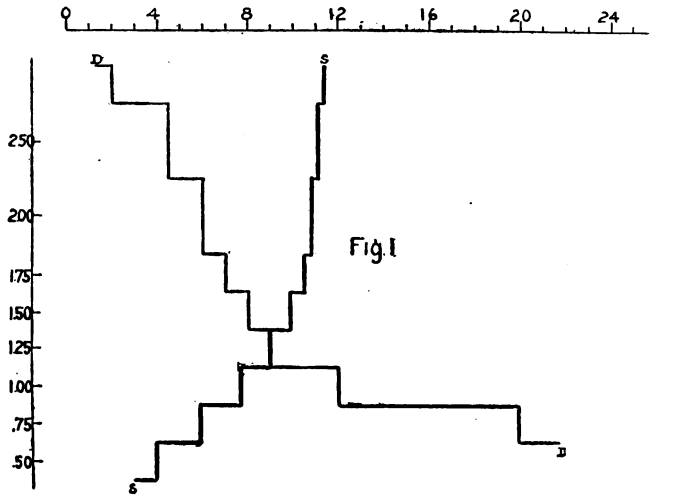

Fig. I

Note (2): Just how far this imaginary case represents actual cases is not easy to determine. Most economists probably would hold that it applies to only a comparatively small number of rare products such as the more valuable gems, special brands of wine, special brands of tobacco, the very rare metals, etc. On the other hand, one of the most eminent writers of an important school of economists, the Austrian school, contends that an illustration like this would represent the case of substantially all commodities; and he makes this hypothesis the basis of a special

theory of value (price) which makes all values (prices) depend finally upon marginal utility.

Turning now to variable-supply goods, we distinguish two principal sub-classes: (1) constant-cost goods and (2) increasing-cost goods. By constant-cost goods, we mean producible goods of such a nature that we can increase almost indefinitely the output of those goods without increasing the cost of production. Such a description is of course not quite true of any commodity one might mention. But, as already pointed out, it is substantially true of goods like the wooden chair which was used for illustration in a former connection, page 122. So long as the output wanted was greater than 500,000 units and less than 5,000,000, the cost of producing these chairs did not change;

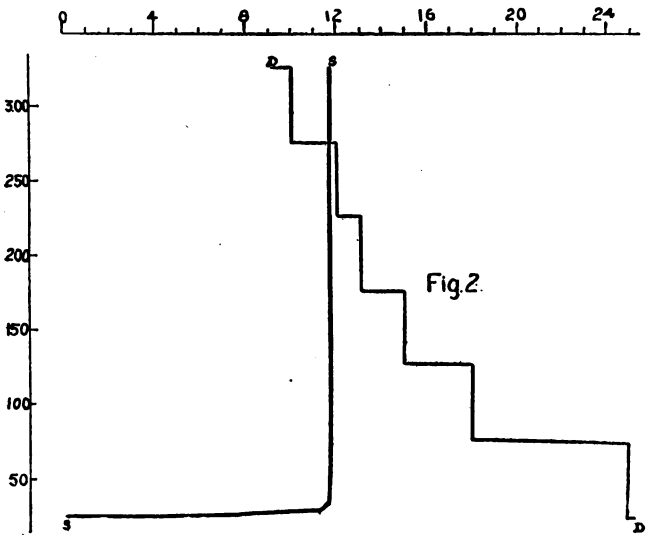

Fig. 2.

and, since this range of output allows for a very great variation in demand, this constancy of cost was a really vital matter,—the chair was in effect, virtually, a constant-cost commodity. Constant-cost goods plainly correspond to what we called in the last chapter single-supply-price goods; that is, goods the supply schedule of which shows one price at which an indefinite amount will be furnished, while at prices below that figure none whatever is forthcoming, and, at prices above, there is no increase,

because the amount which will be furnished at the first price named is by hypothesis indefinitely large. It follows that the schedules and diagrams used for those single-supply-price goods are readily applicable to this case of constant-cost goods. By increasing-cost goods we of course mean goods the marginal cost of which increases as the output is increased. This class of goods is well represented by such products as silver, copper, wheat, cotton, and so on; and the schedules for goods of this sort will be naturally represented by the silver schedule which we have employed so extensively in previous discussions.

Section C. **Normal Schedules.**

It was explained in Section A that the causes which in the long run determine normal price act through the same principles of supply and demand which have already been considered in the preceding chapter, and that we have long-time or normal supply schedules and demand schedules, just as we have immediate or market supply schedules and demand schedules. Accordingly, we must prepare the way for our study of the theory of normal price by making a brief investigation into these normal supply and normal demand schedules.

I. Normal Supply Schedules.

In the case of supply schedules, our present task has been in a measure anticipated in that the classification of goods which is to be used in our study of normal price, and which has already been explained, is based upon the nature of the supply schedules of those goods. Thus, our first main division consists of goods which show a constant or fixed supply, while our second main division consists of goods which show variations in supply. There are left, however, two or three matters which deserve special comment. Taking up first the case of *fixed-supply goods*, it is obvious that the principle of elasticity usually applicable to supply schedules has here no validity. That is, supply does not increase as price rises, or diminish as price falls; for, by hypothesis, supply remains constant throughout the whole series of prices. Again, the distinction between supply and stock which applies to many other types of goods disappears in this particular case. Supply, the student will remember, means the amount actually offered for sale; while stock means the total amount in existence which *might* be offered for sale. But, since in the long run the

total stock will be marketed, that is, will all pass over into supply, we understand by supply, when studying normal price, the total stock. Another peculiarity of the supply schedule of fixed-supply goods which is of much importance is that these schedules show *no supply prices* in the strict sense. That is, there are *no prices on which the forthcoming of supply is conditioned*:—the supply will be so and so whatever the price.

Let us turn, now, to the long-time or normal supply schedules of the different classes of *variable-supply goods,* beginning with the first sub-class of this division, that is, *constant-cost* goods. The first point to be remarked here is that the supply schedules of these goods are of the type described in the preceding chapter as a *single-price supply schedule,* that is, a supply schedule of such a character that, at one particular price, an indefinitely large amount is offered for sale, while, at figures below that price, none is supplied, and, at figures above, the same indefinitely large amount is offered. The proof of this proposition, that constant-cost goods have single-price supply schedules, is not difficult. Since by hypothesis an indefinitely large amount can be produced at the cost named, producers will offer an indefinitely large amount at this price; for the larger their output the greater the profits which each producer would derive therefrom. Further, no more will be offered at higher prices, since an indefinitely large amount is thereby declared to be non-increasable. On the other hand, if price were to go below this constant cost, producers would lose; and, hence, supply will be zero at prices below this constant-cost. Accordingly, there will be an indefinite amount offered at one particular price, no more at prices above such particular price, and none at all at prices below. That is, the supply schedule of the sort of commodity in question will necessarily be a single-price supply schedule.

A second point with respect to the supply schedule of this class of goods, which, although plainly implied in the preceding discussion, needs to be remarked upon because of its great importance, is that the factor or element which is in the background determining *the supply price of commodities of this class,* that is, the price which conditions the forthcoming of supply, is *the cost* of producing said commodity.* In other words, the

* As explained in Chapter 2, page 53, we understand by cost what we earlier called entrepreneur's cost, that is (1) the money outlay of the entrepreneur, (2) the money value of those contributions made by the entrepreneur which could be bought on the open market, and (3) the money expression of such contributions as the entrepreneur only could make,—profit in the narrower sense.

particular price which constitutes the one price of these single-price schedules *is what it is because the cost of production is what it is* It follows that, if we find that the supply price plays any important part in determining normal price for this class of goods, we therefore also necessarily find that cost of production plays this same part. *Whenever, in short, we have a proposition affirming a particular relation between normal price and supply price, we can substitute in such proposition for the phrase "supply price" the other phrase "cost of production."*

Passing now to the second sub-class of variable-supply goods, that is *increasing-cost goods,* we remark first that the normal supply schedule of said class of goods will be, in general, an increasing-price schedule, that is, increases in the amount offered will involve increases in the price at which offerings are made. The proof is not difficult. In the first place, the supply price for any given volume of supply will inevitably be the marginal cost of producing that volume of supply,—cost being taken, remember, to include the usual profits to the producer. Price could not be less than this marginal cost; since, in the long run surely, producers would not offer goods for sale at a price which made them lose money if only on the marginal portion of the output. On the other hand, supply price could not in the long run be higher than this marginal cost; since, although producers would always be glad to get a price higher than their cost, they *will,* after all, *stand ready* to supply the commodity at a price as low as cost, if no better price is offered; and this is what we mean by supply prices, that is, they are the prices on which are conditioned the forthcoming of supply. But, again, it is a plain corollary from the point just made, that, if the producer is obliged to incur a greater cost in order to increase his output, then, when called on to do this, he surely will make a corresponding increase in his supply price, that is, the price on which his offerings are conditioned: since otherwise his supply price would be less than the marginal cost of production which, as just seen, is impossible. That is, as affirmed above, *the supply schedule of an increasing-cost commodity will be an increasing-price schedule.*

We have just seen that increasing-cost goods have supply schedules which belong to the class characterized in the last chapter as increasing-price supply schedules. A second point to be made of much importance is that the supply schedules of goods of this class are also of the kind which we earlier called *typical,*

that is, over a wide range of prices, these schedules show fairly uniform changes in output with substantially every material change in price; in other words, they are highly regular and symmetrical. This is inevitable from the conditions of production. When we consider that the natural factor in production, the land, varies greatly with respect to natural fertility and advantage of situation, and that individuals are of all degrees of efficiency, it is plain that costs of production for goods of this class will be of almost infinite variety. This, of course, will make the supply prices, that is, the prices on which the forthcoming of supply is conditioned, equally diverse.

A third point to be made with respect to the supply schedules of this class of goods has already been brought out in making our first point. It is this. *The marginal cost of production is the factor or element behind the scenes which determines the supply price for any particular volume of the commodity in question.* Thus, if two billions bushels of wheat will in the long run be offered if price is 80c; two billions one hundred millions if price is 85c; two billions two hundred millions if price is 90c; and so on, this will be true, because the marginal cost of producing two billions is 80c; that of producing two billions *one* hundred millions is 85c; and so on. In other words, the supply prices of a normal schedule of a commodity of this class are merely *so many different marginal costs*:—the schedule itself may be interpreted either as a supply schedule or as an output-cost schedule, that is, a schedule showing just how much of the commodity in question could be produced at a marginal cost equal to each of a series of prices. It follows from the above that, whatever we can say about the relation between the normal price of a commodity of the class before us and one or more of its supply prices, we can with equal correctness affirm with respect to the relation between said normal price and one or more of the costs of producing said commodity. That is, in any formula containing the phrase "marginal supply price" we can properly substitute the phrase "marginal cost of production."

2. Normal Demand Schedules.

In analyzing normal demand schedules, our first need is to consider the deeper factor or element which lies behind demand prices; for there is no anticipation of this in our classification of goods, as there was in the case of supply schedules. What, then,

is the factor which determines the prices at which buyers in the long run stand ready to buy goods, in the same way that cost determines the prices at which sellers stand ready to sell goods? In answering this question, it is necessary that we should go to the schedule of the individual buyer and ask ourselves what motive or motives finally determine his conduct. For, obviously, the general or social schedules with which we have to deal are composites or aggregates made up by adding together the figures of numerous individual schedules. Thus, if we say that, according to the general demand schedule for silver, 180,000,000 ounces are wanted if price is 55c; 190,000,000 if price is 54c; and so on, we mean that, if the different amounts of demand at 55c from the schedules of all the different buyers of silver be added together, their sum will be 180,000,000 ounces; if the different amounts of demand at 54c from the schedules of all the different buyers be added together, their sum will be 190,000,000; and so on. We proceed, therefore, to consider the normal demand schedules of the individual.*

First, then, it is to be remarked that the prices appearing in the demand schedules of the individual are his money estimates of the importance, *significance*, which the goods in question have for him. Thus, if a given householder stands ready to buy 10 pecks of apples if the price is 50c a peck, this surely means that in his opinion 10 pecks of apples have a significance or importance to him represented by $5. Doubtless this estimate lacks the precision which would be required in measuring the structural unit of a building. But it is nevertheless very real and quite sufficiently precise for the purposes of our householder. The fact that he decides in favor of the apples rather than putting all or some of the $5 to other uses shows con-

* It hardly ought to be necessary to say that, in talking about the demand schedules of the individual, we have no intention of implying that these schedules are made up independently of social forces. There can be no doubt—there never has been any doubt—that the standards, ideals, tastes, wants of any particular individual and, therefore, the valuations which such individual puts upon goods, are in a very great measure the creation of the community in which he lives,—the results of education, example, and so on. We are born into the family, into society, into the state; and our notions, our ideals, are never formed independently of these groups in which we live. But there is no inconsistency whatever between adherence to this last doctrine even in its most extreme form, and the affirmation that the demand schedules of the market are composites made up by adding together the demand schedules of individuals. For, however large may be the share of environment forces, social forces, in the determination of our tastes, ideals, wants,—**these social forces must express themselves through the demand of the individual.** Goods are purchased, not by the group will, nor by the group ideal, but by **concrete individuals.**

clusively that he has made some estimate of this kind. In short, reasonable economic conduct at any point—the reasonable utilization of any sort of an income—would be impossible, were we not constantly making estimates of the kind indicated. The illustration just used—the householder and the apples—was one involving *consumption goods*. But substantially the same proposition could be made with respect to a manufacturer or dealer who was buying goods, not for consumption, but to be used in a way to make a profit from them. The prices which the latter stands ready to pay for given quantities of any particular commodity express his estimates of the significance or importance which said quantities of that commodity have for him. It follows that we may treat the demand schedule of any individual for any particular commodity as, in effect, the *significance or importance schedule* of that same commodity. Further, supposing the commodity in question to be divisible like the apples, whenever the buyer decides to take a particular quantity of said commodity, then the significance or importance attaching in his mind to the increment of demand which came with that particular price is *the marginal significance* of that amount of the commodity; the significance of the next portion which he might buy would be *the first extra-marginal significance* of said commodity; while the significance of the portion bought next before the last would be *the first intra-marginal significance* of the commodity.

We have just seen that demand prices in the individual demand schedule are expressions of the significance of the commodity in question to the buyer. We must now add that the ultimate ground of significance or importance to the individual is **utility,** capacity to satisfy wants. This is plain enough in the case of the demand schedule of the ultimate consumer, for example, our householder. It is not, however, obviously true for buyers who are offering to purchase goods intending to sell them for a profit or to use them in producing something which they will sell. The ultimate utilities of such goods or their products do not interest the buyers now under consideration. At bottom, however, the cases are not materially different. The demand schedules of middlemen and producers are fairly faithful embodiments of the schedules of consumers. When they are not, dealers or producers are wont to go into bankruptcy. Broadly speaking, then, it remains true that the thing which in the last analysis determines demand schedules or demand prices is

utility to consumers. Accordingly, it cannot be doubted that the utilities of things play a very vital role in determining the significances or importances of which, as we saw above, the demand prices of the individual demand schedule are expressions. It follows that some knowledge of the nature of utility and the principles governing it is essential to an adequate comprehension of individual demand schedules, and, hence, of the general demand schedule with which the market deals. It becomes necessary, therefore, to turn aside to consider briefly the most important points in the theory of utility, or the theory of wants and their satisfaction. This, however, will delay us but a moment, as the principles needed for our purposes are thoroughly familiar and obvious.

Let us suppose ourselves to take some divisible commodity—a commodity which we can buy and use in relatively small units—e.g., food, and make a series of experiments with respect to the degree of gratification derivable from different units of said commodity, starting with zero and increasing the amount consumed by small increments. In the course of such an experiment, we should doubtless find our experience breaking into something like the following stages: (1) gratification increasing more than proportionately to the amount consumed, (2) gratification increasing, but less than proportionately, (3) gratification not increasing at all, (4) gratification changing to discomfort. But, of these four stages the last, surely, may be dismissed at once; for no one would enter it intentionally. All of the remaining three perhaps ought to be retained; though only one of them is of considerable importance. With most of us there will be only a few commodities which we can possess in sufficient abundance to carry our consumption of them to the point of satiety, the point where they bring us no further gratification. Again, there will be only a few very expensive luxuries which we get in such small amounts that an increase in the quantity of our possessions would more than proportionately increase our gratification. In short, with respect to the vast majority of goods, our purchases and stock will be such that additions would increase our gratification but not proportionately to the increase in quantity. If now we put these points into formal shape, employing the word utility to express the power of goods to give us gratification, we shall have the following:

Principle. *As regards its capacity to give to the consumer*

increase of gratification with increase of quantity, any divisible commodity may be in any one of three stages: (1) *utility increasing more than proportionately,* (2) *utility increasing less than proportionately, and* (3) *maximum utility; but, in practice, most commodities will be in the second of these stages, that is, the stage of utility increasing though less than proportionately.*

To bring this statement of the case into closer accord with the conventional treatment of our subject, we may ignore the less important stages referred to and lay down what is commonly known as the law of diminishing utility.

Principle. The Law of Diminishing Marginal Utility.

Broadly speaking, any addition to our stock of any commodity will make some addition to the total utility enjoyed, but not one proportional to the quantity of the commodity added.

We have just seen that, as respects their utility or power to give us gratification, commodities are subject to the law of diminishing marginal utility. But, since, as was explained on page 235, the significance or importance of a commodity for the individual is determined by its utility, it quite obviously follows that a principle similar to the one just laid down will apply to the signifinance* or importance of commodities.

Principle. *Broadly speaking, the total significance or importance of a stock of any commodity will increase with its amount but not proportionately; so that the marginal significance of any commodity varies inversely as the quantity of said commodity is available.*

We seem now to have gone quite a distance from our starting point, the demand schedule of the individual. The student, however, will have little difficulty connecting the latest results of our analysis with our original topic. The principles just brought out, namely, the principle of diminishing utility and the consequent principle of diminishing significance, explain the most important feature of our demand schedule, that is, the fact that it is a schedule wherein demand varies inversely as price. For these principles say in effect (1) that, by adding to our total stock of a given commodity, *we can increase our total of utilities or sig-*

* It is quite common, in setting forth the laws of price, to employ in this connection the concept of utility. But for various reasons we shall, in this edition of our text, make use of the concept "significance" in preference.

nificances to some extent anyhow, and (2) that, by the conduct indicated, *we can* **not** *increase said utilities or significances in proportion to the increase of our stock.* Now, the first of these two facts—that an addition to stock will increase utilities or significances to some extent anyhow—is necessary to explain why we are willing to increase our purchases if the right price appears; for, obviously, if additions to stock give no increase in utilities, we surely would not buy any more, *whatever the price.* On the other hand, the second fact—that additions to our stock will not increase our utilities or significances in proportion to these additions to stock—is necessary to explain why our buying more is conditioned on the appearance of a lower price; for, if the utilities or significances of the new increment of stocks were as great as the old, we should be disposed to buy more, *even if price did not fall.*

Note: It perhaps ought to be remarked in this connection that there are very considerable differences among the demand schedules of the individual. Thus, some schedules show much more elasticity than others,—that is, show much more variation in demand with variation in price. For example, the schedules of necessaries of life are naturally inelastic; those of luxuries are naturally elastic. Again, some schedules are commonly much shorter than others; because some wants are much more quickly provided for to the point of satiation than are other wants. Thus, the schedules of goods which are devoted to the satisfaction of physical wants, e. g., food, are shorter than those ministering to higher wants, e. g., books. Utilities of the former decline very rapidly; those of the latter very slowly.

Thus far, in studying utility, we have been concerned with the case of indefinitely divisible goods, goods the unit of which can be made indefinitely small. But it scarcely need be said that not a few of the commodities which we buy, especially if our incomes are of the moderate class, are indivisible or large-unit goods. Thus, each one of us has to have a house, a furnace, a kitchen range, a dining-table, etc., etc.; but we cannot buy today 10 cents worth of one of these things, tomorrow another 10 cents worth, the next day another 10 cents worth, and so on; that is, we cannot rate and buy separately the different utilities of a commodity of this sort. Instead, we must estimate and purchase all these utilities in a lump. It follows that, in cases of this sort, we necessarily buy a large number of the utilities involved; and, therefore, it is inevitable that such goods should for us have

passed beyond Stage 1 and well into Stage 2;* that is, we shall necessarily come into possession of many of the lesser utilities derivable from these goods in getting any of them; and, therefore, an additional unit could not give us as large a utility as the first had given us. It follows from what has just been said that indivisible goods can properly be brought, in a general way, under the principle of diminishing utility above laid down. However, one or two comments might perhaps well be added. While it will probably always be true, with most consumers, that the utilities of additions to stock in the case of indivisible goods will be diminishing utilities; it will not always be true that these additions to stock will confer any utility at all;—i. e., in some cases, additions to stock will bring no advantages or even positive disadvantages. Again, we may be quite sure that, in any case, the individual schedule for goods of this sort will be a very brief schedule,—with rising price, the complete disappearance of demand will come very quickly.

We have now carried as far as seems needful that study of the individual demand schedule which was undertaken as a condition of comprehending the composite or general demand schedule which is, of course, the one that plays the decisive role in price-determination. We now return to apply the material gained to these composite or general schedules. First, it is to be affirmed that the principles governing utility insure that the general demand schedule, like the individual demand schedule, will be subject to the principle that demand varies inversely as price. Since practically all individual schedules are governed by this principle, and the general schedule is merely the summation of these individual schedules; any other result would be possible only in quite exceptional cases.

In the second place, it follows from our analysis of the individual demand schedule, that *the demand prices of the general schedule are money expressions of the marginal significances of the several amounts of goods named in the schedule,—as these significances are estimated by the particular person interested.* It follows, then, that, in so far as any particular demand price constitutes the deeper factor or one of the deeper factors determining price in any particular case, it is really some particular significance of the commodity in question which is doing the work. Accordingly, in any formula of

* In some cases, anyhow, they will have reached Stage 3.

price-determination which contains the phrase "marginal demand price," we can properly substitute the phrase "marginal significance,"—it being understood that the significance alluded to is measured, not by some common mind according to a common standard, but by the individual person immediately interested.

Note (1) In the above explanation, emphasis was laid on the point that the demand prices of the general schedule are expressions of the marginal significance of the corresponding quantities of the commodity, as these are estimated, not by some common objective mind, but by the particular person interested. Now, if we were dealing with the schedules of some individual, and noted two significances or utilities both of which were estimated at $1, we should feel justified in assuming that the volume of these significances or utilities were substantially equal. On the other hand, if in the schedules of this same individual we met two significances the estimates of which were respectively $2 and $1, we should feel justified in assuming that the former of these was twice as great as the latter. Now, even in the case of the individual, the definiteness involved in such a method of speech, is, to say the least, of doubtful propriety. Taking into account the variability of our moods and the inaccuracy of our self-judgments, we should be quite unwarranted in treating the figures as expressing the realities of the case with any great precision or nicety. But, whatever may be true in the case of the individual, the general schedule surely cannot be treated in this way. The significances there expressed in money prices are surely not commensurable as absolute magnitudes. If two of them are expressed by the same figure, $1, it by no means follows that they are equal in the sight of an absolute intelligence. If one of them is expressed by $2 and another by $1, it by no means follows that the absolute magnitude of the former is twice that of the latter. As absolute magnitudes, significances which are represented by the same price may be quite unequal; while significances represented by different prices may be equal. This would be true, if for no other reason, because the people demanding goods and so contributing to make up the general demand schedule differ greatly in respect to physical and moral health and so in respect to needs, in respect to sensibility, in respect to capacity to feel pleasure or pain intensely, and so on. But more important than these is the fact that, because men have very unequal money incomes, the same nominal measuring unit, $1 or whatever it may be, has very different real magnitudes. A want on which the poor man puts an estimate of 5 cents may be, absolutely considered, as great as one on which the rich man puts a money estimate of $1. It is thus plain, that, if we are to conceive the prices of the demand schedule as in any sense expressing significances or utilities, this must be with the distinct understanding pointed out that they are expressions of

said significances *as these are estimated by the particular person interested.*

(2) It will perhaps occur to the student that, if the significances expressed by demand prices are so entirely lacking in homogeneity, it will hardly pay to use these concepts at all in connection with *general* demand schedules, however useful they may be in connection with *individual* demand schedules. In fact, not a few economists have in recent years taken this position. In the present course, however, we shall act upon the contrary opinion;—that is, we shall set forth the influence upon normal price of significances or utilities as represented in our composite demand schedules, *as if these significances were factors of real importance in the determination of prices.* The defence of this position however will be postponed to a later connection. Here we shall work out the merely formal relation involved, assuming that the results can be shown to be useful at a later time.

I will now close this long discussion of normal demand schedules with a statement in respect to *the general character* of such schedules, which is of much practical importance. It is this. *Broadly speaking, substantially all general demand schedules are of the kind which in the last chapter were characterized as typical,*—that is, over a wide range of prices, these schedules show fairly uniform changes in demand with substantially every material change in price. In other words, these schedules are highly regular and symmetrical. Doubtless this must be affirmed less roundly of some than of others. A few are relatively inelastic, e. g., those of the prime necessaries of life; but even these are by no means absolutely unresponsive to the influence of price changes. This fact about general demand schedules is an inevitable result of the conditions involved. (1) Such schedules are composites made up of numberless individual schedules. (2) The tastes and wants of individuals differ greatly. (3) Most of all, the incomes of individuals are very unequal. As a result of these conditions, there will be some effective demand at almost every price level. Even at very high levels, those who are rich and wish the commodity in question intensely will continue to demand it; while, with each fall in price, some persons who care less or have smaller incomes or who fulfil both conditions will come in with a new demand. The general schedule as whole, therefore, will show a high degree of continuity, regularity, and symmetry.

Section D. **Normal Price of Fixed-Supply Goods.**

We have now the data necessary to enable us to bring out the deeper principles regulating the long-time or normal prices of things. Let us begin with the general case of fixed-supply goods. As an example, we will take copies of the Basel edition of Sir Thomas More's Utopia. Let us suppose that, at about the same time in the year 1913, three or four different finds are made bringing on the market a new supply of these books amounting to ten copies. Let us suppose, further, that the demands of libraries and private collectors are such that the aggregate demand schedule is as follows: 1 copy wanted, if price is $200; 2 copies, if price is $175; 4 copies, if $160; 6 copies, if $125; 10 if $100; 11, if $90; 14, if 75; and so on. Under these conditions, what must the price tend to be, and what principles will regulate that price? The hypothesis as stated is represented in the accompanying demand and supply schedule. A glance shows that the price could not be above $100; for, if it went above this figure, 4 buyers would then withdraw making demand deficient, and, in order to guard against this result, the sellers would bring price down to $100. On the other hand, price could not go down to $90; since, if it did, two new buyers would come in, making demand excessive, a result which $100-buyers would have to guard against by bidding price up to at least $91.

Demand	*Price*	*Supply*
00 *oz.*	*dollars*	000 *oz.*
1	200	10
2	175	10
4	150	10
6	125	10
10	100	10
11	90	10
14	75	10
16	60	10
20	50	10

Let us now analyze this result in detail. In the first place, we see that our old law of supply and demand is operative, —that is, a price must be reached at which demand and supply are equal. In this case, however, we are able to affirm the law in a somewhat special sense. For, since supply is constant and so demand only can change, the proposition that we must have a price at which demand and supply are equal is really best stated in the following form.

Principle. *In the case of fixed-supply goods, the normal price*

must tend to be that price or some one of that series of prices which will cause demand to become equal with the unchanging supply. Or, more briefly, the normal price must tend to be that one or some one of that series which will equate demand to stock.

Note: As explained earlier, in cases like that before us, if demand and stock are not quite equal at one of the prices given in the schedule, the necessary equating of demand to stock would usually be effected in practice by compromise prices between those given in the schedule. That is, there would be equality of demand and supply reached at $95 or $94 or $97 and so on. If in any particular case this should not result, there would be no price which had complete stability,—actual price would tend to oscillate between the lowest one at which supply exceeded demand and the highest one at which demand exceeded supply.

A second proposition which is plainly applicable to the case before us is contained in the following:

Principle. *In the case of fixed-supply goods, the normal price must be one of the prices ranging from a limit fixed by the marginal demand price, and that only, down to a limit fixed by the first extra-marginal demand price, and that only.*

The argument is plain. As we saw in our first analysis of this case of the copies of Utopia, at least one reason why normal price could not be above $100 is that, unless price is as low as $100, the last increment of demand, 4 copies, will not appear at all and hence sellers will be obliged to bid actual price down to $100 to insure disposal of the stock. That is, that one of the variables fixing the upper-limit of price which comes from demand, the marginal demand price, is actually operative in the case before us. But, again, it is plain that this is the only one of the two motives which may compel sellers thus to bid price down which is here operative. The other consideration, that, if they do not thus bid price down, a new supply will be forthcoming is not operative; since there is no new supply to come in, —supply is constant. In other words, in the case before us, the first extra-marginal supply price has no share in fixing the upper limit of actual price. That limit is fixed by the marginal demand price only.

Turning now, to the lower limit of price in this case, it is evident that actual price could not go down to $90 because this would make demand increase by one copy, thus compelling

buyers to bid price up to some figure above this point in order to exclude this increment of demand. That is, the demand price lower limit, $90, the first extra-marginal demand price, is actually operative. That is, buyers do not have to keep price up in order to keep in the marginal supply; since by hypothesis supply is constant and therefore will not fall off with a declining price.

The principle last set forth has brought out the point that the determination of normal price in the case before us is entirely in the hands of *demand* price. But in Section C it was made clear that demand prices, when more deeply considered, are money expressions of the *significance* which goods possess for buyers as this significance is estimated by those buyers themselves. It follows that in the principle just laid down we can substitute "significance" for "demand price" in every case. The principle thus amended would read as follows:

Principle. *In the case of fixed-supply goods, the normal price must be one of the series of prices which is limited above by that price which expresses the marginal significance of the commodity in question and is limited below by that price which expresses the first extra-marginal significance of said commodity. The prices of such goods of this class as are producible are not influenced by their cost of production.*

Note: One phase of this principle is of great practical importance. I mean the fact that there is a *downward* limit to normal price in the first extra-marginal significance of the commodity involved. In the case of one particular commodity of this sort, namely labor, this point is overlooked by a very large number of the general public and also occasionally even by economists. That is, such persons frequently have the impression that there is no downward limit to the wages which the laborer will have to take except his own determination to refuse the lower figure. But, obviously, the *competition of employers* who wish to put labor to the first extra-marginal use constitutes a reason why the price of labor should not fall indefinitely. Now, if the first extra-marginal use is but little below the marginal one, and this is quite likely to be the case, it is to be expected that the competition of employers would keep wages *from falling materially below the marginal significance of the labor furnished.* This of course assumes perfect freedom of competition, complete knowledge on the part of employers as to what laborers are worth to them, and complete freedom of movement to laborers so that they can improve any opportunity that employers would naturally give them. Doubtless such perfection of competition, such completeness of knowledge on the part of employers

and of mobility on the part of labor, is seldom realized; but, for our present purposes, we are dealing with what would be expected under the hypothetical conditions which our science, like every other science, assumes when attempting to ascertain the fundamental principles which govern the phenomena it has to investigate.

Our principle, as laid down above, defines the limits of price-variation, rather than definitely fixing said price. This cautious procedure, though necessary from the theoretic standpoint, is hardly necessary in practice, for the reason that, in most cases significance or utility schedules are substantially continuous, unbroken—every change in the price of the commodity is matched by a normal change in its marginal significance. In consequence of this, the marginal significance and the first extra-marginal significance will commonly be in juxtaposition; and, hence, it is only necessary, in most cases, to affirm that price must express marginal significance. Amending the statement of our principle in accord with this view of the matter, we have the following:

Principle. *Generally speaking, the normal price of a fixed-supply commodity must tend to be that price which expresses the marginal significance or utility of the existing stock of said commodity.*

ILLUSTRATIVE PROBLEMS.

1. During the current year, there came on the market from various sources twelve specimens of a certain rare object. If the ultimate demand schedule proves to be as follows: 1 wanted at $60; 2 more at $55; 4 more at $50; 5 more at $45; 6 more at $40; *etc.*, what price will in the long run tend to be reached? Prove.

2. In a certain year the output of wheat proved to be 2,000 millions of bushels. The ultimate demand schedule for the year ensuing till the next harvest was as follows: 1,600 mil. bu. wanted if price were $1.30; 1,800 mil. if price were $1.25; 2,000 mil. if $1.20; 2,200 mil. if $1.15; and so on.

(a) What price would tend to prevail for that year? Prove in detail.

(b) What would determine it?

(c) What price would tend to prevail, if the demand moved up a step, making the schedule 1,800 mil. at $1.30; 2,000 mil. at $1.25; 2,200 at $1.20; 2,400 at $1.15; and so on?

(d) What price if demand moved up two steps, making the schedule: 2,000 mil. at $1.30; 2,200 at $1.25; and so on?

(e) What price if demand moved down two steps, making

the schedule: 1,200 mil. wanted at $1.30; 1,400 mil. at $1.25; 1,600 at $.20; 1,800 at $1.15; 2,000 at $1.10; and so on.

3. Suppose we were dealing with a longer period than one year and the average annual supply schedule was of the variable kind, running as follows: 2,400 mil. bu. furnished if price were $1.30; 2,200 mil. if $1.25; 2,000 mil. if $1.20; 1,800 mil. if $1.15; and so on.

(a) Supposing the average annual demand schedule to be the first one given under Problem 2, what would the long-run price tend to be? Prove.

(b) Supposing the demand schedule to be as in Pr. 2 (d), what price would tend to prevail?

(c) Compare this result with that reached in Pr. 2 (d), and point out the difference in the processes whereby prices are determined in the two cases.

4. "In 1348-49 the black death carried off from one-third to one-half of England's workingmen. In consequence wages greatly advanced."

(a) Explain the advance in wages on the basis of the Law of Supply and Demand given on page 199, constructing for the purpose imaginary demand and supply schedules.

(b) Explain the advance in wages on the basis of Marginal Significance principle given above.

(c) Discuss this statement: "Wages rose because the demand for the laborers who were left had greatly increased."

5. Suppose that the supply and demand schedules for the rare brand of tea which you get from page 227, are identical with the *ultimate* schedules.

(a) What must the normal price of this brand of tea tend to be under Demand Schedule D? Prove.

(b) What would it be if the supply schedule were changed so as to read: 4,000 pounds if price is 50 cents; 6,000 if 75 cents; and so on up to 11,600 if price is $5, after which no increase in supply takes place.

(c) This last example shows that a particular element which often shares in the fixing of price, in this tea case plays no part, leaving the work to be done by marginal utility. What is the excluded element?

Section E. **Normal Price of Constant-Cost Goods.**

In the section just preceding, we discussed what were called fixed-supply goods, meaning goods the ultimate supply of which for its normal price period is substantially determinate—can not, economically speaking, change. These goods are strictly non-producible, or non-producible during the normal price period, or producible only under such conditions that, unless a quite abnormal change in demand should take place, their output is sub-

stantially fixed. We must now consider that large class of goods which are producible under such conditions that, within any range which demand is at all likely to traverse, their output is capable of almost indefinite contraction or expansion, and the supply offered can and will materially change with changing price. Goods of this class we have already subdivided into constant-cost and increasing-cost goods. We will begin with the sub-class, constant-cost goods.

The theory of this case is comparatively easy to dispose of after the preparation derived from preceding discussions. First, let us remind ourselves that constant-cost goods have single-price supply schedules, i. e., supply schedules in which there is one price at which a substantially indefinite supply is forthcoming, while below that price practically no supply is to be had, considering the volume of demand, and at prices above said price no additions to supply take place. It follows, therefore, that the principle already brought out (page 220) for goods having single-price supply schedules furnishes us with one principle applicable to constant-cost goods, viz., the principle that the normal price of such constant-cost goods must tend to coincide with the one supply price.

But, again, the one supply price of goods of this class is their cost of production. It follows, therefore, that, in our formula for this case, we may substitute for the phrase "single supply price" the much more significant phrase "cost of production." Accordingly, our principle for this case is the following.

Principle. *The normal price of constant-cost goods, the continued production of which is demanded, must approximately equal their cost to representative producers.*

As an example illustrating this principle, let us take the wooden chair, the ultimate supply schedule of which was discussed on page 229. As already pointed out, this is a constant-cost commodity only while demand ranges between 500,000 and 2,000,000; since before that cost is diminishing with increased output while later it is increasing. Since producers will of course stand ready to supply at prices *above* 30 cents as many chairs as they would at that figure while below 30 cents they will supply none, it is possible to fill out a many-price supply schedule of the usual form; and this is perhaps desirable. Let us now make such a supply schedule and combine it with several demand schedules, as a result of which we have the following table:

SUPPLY....	PRICE	DEMAND 000				
000	Dollars	Sch. A	Sch. B	Sch. C	Sch. D	Sch. E
500-2000	3	2	3	3	5	5
500-2000	2	10	12	15	20	20
500-2000	1	50	51	60	80	80
500-2000	.75	300	500	810	1100	1100
500-2000	.50	500	750	1020	1400	1400
500-2000	.40	600	895	1200	1520	1400
500-2000	.30	700	950	1540	1840	1400
0	.25	1000	1210	2000	2560	1400
0	.20	1500	1800	2560	2800	1400
0	.15	2500	3000	3800	4563	1400

If, now, we combine the supply schedule of this table with demand schedule A, we see at once that a price of 30 cents must tend to prevail. If proof is needed, it is found along the lines already followed. The price can not be higher than 30 cents, say 40; because at that price demand will be less than supply at 30 cents, and sellers at the last figure competing to get the market will bring price down to that point. On the other hand, price can not be below 30 cents, say 25; because at that price supply will become zero and so vastly less than demand at 30 cents, as a consequence of which, buyers at the last figure, in order to get their wants supplied, will raise price to that point. Reasoning precisely similar to that just used would show us that this same price of 30 cents would tend to prevail if the demand schedule were B or C or D rather than A. In fact, whatever the demand schedule, so long as demand at 30 cents were not smaller than 500,000 and not larger than 2,000,000, actual price would necessarily tend to be just 30 cents.

Note: (1) The formula for these goods laid down above contains the qualifying phrase "the continued production of which is demanded." The necessity for this will easily be seen. As explained in Section B of this chapter, if a producible commodity is no longer demanded in such quantity and at such price as to warrant its further production, the existing stock of such a commodity passes into the class of fixed-supply goods, e. g., hats out of style. Commodities of this sort have to sell for whatever price buyers will pay:—their price becomes a matter of their marginal significance solely. *Cost determines the price of any commodity only when, and because, it is in a position to influence potential future supply.* But, if no future supply is wanted, a cause which can influence price only through its relation to future supply can have no part whatever in fixing price.

(2) The point made in the preceding comment must not be understood as in any degree a relinquishing of the main contention of our principle, viz., the contention that, in the case before us, *cost determines price.* So long as the conditions supposed exist, the price of our wooden chair will tend to be 30 cents; and this will be true *because the cost of production is* 30 *cents,* and for that reason only. But perhaps this may sems to be an overstatement of the case. Under each of the different demand schedules used above, *price coincided with marginal significance* just as much as it did with marginal cost of production. Thus, in Schedule A, there are 100,000 chairs which are wanted only provided the price is as low as 30 cents; in Schedule B there are 55,000 such; in Sch. C, 340,000; and in Sch. D, 320,000; and the significance of these chairs, the *marginal* significance of chairs in general, is obviously 30 cents. Price, in short, coincides with marginal significance just as much as with marginal cost. Can it not, therefore, be plausibly contended that marginal significance plays just as much of a part in the immediate determination of normal price as does marginal cost? The correct answer is undoubtedly a negative one. While the marginal significance must be as high as 30 cents, it may be much higher; so that, if marginal significance really coincides with an actual price of 30 cents, as it does under Schedules A, B, C, and D, *this means, not that marginal significance has fixed price, but that it has adjusted itself to a price fixed by cost.*

In order to clear up this point beyond question, let us make a slight change in our hypothesis. First, let us suppose that the actual demand schedule is the one labelled E in our table,—being really Schedule D so altered that, after price reaches a point as low as 50 cents, no increase in demand would take place, though price should fall to 40 cents or 30 cents or any lower figure. Under such a hypothesis, whatever the price should become, the marginal significance of our chairs would continue to be 50 cents each. Again, let us suppose that the cost of production has hitherto been 50 cents; and that the actual price of 50 cents has, therefore, both expressed the marginal significance of the chairs and equalled their cost of production. These conditions being given, let us now suppose that something happens to bring cost of production down to 30 cents, while no change in the demand schedule takes place. Will actual price now follow the new cost, 30 cents, or stick to the marginal significance, 50 cents? The answer surely is that it will follow the new cost: the competition of producers would permit no other result. But, this being true, it is plain that the coincidence of actual price with marginal significance, when we have the demand schedules A or B or C or D, is not necessary to the determining of the actual price of 50 cents; instead, it is merely an incident, being effected by the adjustment of the marginal significance to a price already determined by cost of production.

(3) In the formula embodying our principle, the word cost

is qualified by the phrase "to representative producers." The purpose of this qualification is to shut out two costs either of which might perhaps be suggested to the student's mind if the word cost were used alone. These are (1) the very low cost of a few specially favored producers having limited capacity, and (2) the very high cost of a few specially inefficient producers who will anyhow remain in the business till death or bankruptcy intervenes. The former, being unable to furnish the whole supply required, could not, if they would, bid price down to their own cost. The latter, not being in a position to withhold their addition to output even when price is below their cost, cannot pull price up to their cost. Neither of these, therefore, furnishes the price-determining cost. That cost is cost to *normal, typical, representative* producers.

Caution: In the preceding analysis, it has been assumed that the money prices of cost goods are fixed in advance of their use in production and so, setting out from this starting point, cost can move forward to fix prices. The entrepreneur, we have implied, finds the wages, interest, rent, and so on which he must pay, determined in advance; and so the amount of his cost comes to be entirely a question of how much labor service, capital service, land service, and so on he needs to produce the commodity. If such an assumption were really true, it would anyhow be evident that we have not yet reached the end of our task,—that the ultimate forces determining prices are not yet disclosed; for we should still need to find out how the prices of the ultimate cost goods were determined. As a matter of fact, however, it surely is not true in the full sense that the prices of the ultimate cost goods are determined in advance of their use in production. Such use of those cost goods must surely have some share at least in the determining of their prices. If the employer finds himself getting unexpectedly high prices for the products which labor helps him to put out, in some cases certainly he will sooner or later find himself obliged to pay a higher price for that labor, *i.e.*, to incur a higher cost. In a word, we seem to be involved in a circle,—the prices paid for cost goods determine the prices of product goods, whereupon the prices of product goods react to determine the prices of cost goods.

The difficulties suggested by the preceding paragraph are real and, from some standpoints, they are important. Nevertheless, the principle above laid down, that price tends to equal cost, is universally admitted to be true for practical purposes and by most economists is also held to be of great significance for practical purposes. The business manager, the prospective investor, the prospective buyer, the statesman concerned with the levying of taxes, and so on,—all these will constantly find themselves called on to act as if, for their purposes, the principle we have laid down were *the last word.* Thus, if the manufacturers of a certain commodity are able to put it on the market in indefinitely large amounts at a cost of $3, they would be very

foolish indeed to expect the price to remain at any figure materially above $3, even though for many months it had been in the neighborhood of $5. Again, if, when a certain commodity is being put on the market by representative producers at a cost of 50 cents per unit and is selling at that figure, government levies on its production a tax of $1.50 per unit, thus making it cost substantially $2.00, its price will almost certainly rise to approximately that figure. In a later connection, we shall try to clear up some of the difficulties suggested above. But, for the present, it is our business to impress this upon the student that, however much the principle of cost falls short of furnishing an ultimate explanation of values, that principle is after all of real and great importance in the actual conduct of economic life.

Illustrative Problems.

1. Suppose the conditions for producing Portland cement to be such that any quantity from 5 millions barrels to 500 millions can be put on the market at a minimum cost of about $1.15 per barrel; while any output from 500 millions to 800 would cost $1.25 per barrel.

What would price tend to be under each of the following demand schedules? Marginal utility?

PRICE	DEMAND 000,000					
	A	B	C	D	E	F
3.00	1	30	5	15	5	20
2.50	2	75	15	25	15	50
2.25	5	100	25	44	35	70
2.00	10	200	40	60	43	100
1.75	11	400	60	100	75	200
1.50	13	600	75	200	180	350
1.25	15	700	75	300	200	450
1.15	20	800	75	367	263	495
1.10	25	1000	75	400	300	550
1.05	30	1100	80	430	320	600
1.00	50	1500	100	500	400	800

2. "Let us suppose that five or six concerns are supplying the building brick used in a certain district, and that by a new method of manufacture they manage to double their output for the former expenses of labor. What will happen as regards the price of brick? From our knowledge of what competition usually does, we are apt to say: the price of brick will fall 50 per cent. This may be the final result, but not necessarily so, and at any rate the movement of price is instructive. The manufacturers are now able to sell at half the price if they wish, but it is their interest to keep up the price as long as they can. What, however, will certainly happen, in normal circumstances, is that they will increase their production of brick. But it is not the case that, whatever nature and man

produce, men will desire; it is, rather, that what man wants he usually sets nature and man to produce. To take off the extra supply of brick, then, the manufacturers must find a wider circle of demand than before; but there is nothing to lead us to suppose that there is any wider circle of demand at the old price. What we may safely suppose is that a great many new people will buy brick for building purposes if they can get them cheaper, but, in any case, the decision lies absolutely with them whether they will take more or not. It is easy to fall into the mistake of thinking that there will be a demand for everything produced if it is sold at a reasonable price, but this idea simply arises from the fact that producers anticipate desire and tempt demand. In the present case demand must come from some level of want which was not satisfied at the former price, and is ready waiting to take up the extra supply if the price is brought down.

"If, however, as may well happen—not in the case of brick probably, but in large articles of limited consumption—*there is no such circle of demand at lower levels,* what will happen is that the manufacturers will cut down their output to the same quantity of brick as before, and maintain the former high price. For brickmakers, like other business men, do not put themselves on 'salaries,' and give the public the benefit of all cheapening of production. It is characteristic of the capitalistic employer in all departments that he speculates on having a profit, and thinks no profit too high, just because, as a speculative gain, it may be balanced any year by as great a loss. It is contrary, then, to all experience to think that employers will voluntarily reduce prices—any more than they will voluntarily raise wages or pay higher interest—because costs have decreased. They only do so under compulsion of fear that their rivals will cut the feet from under them. Where competition is active it will often seem as though reduction of costs were almost immediately followed by fall in prices of products, but, in the last resort,—and that is what concerns us in seeking for a universal law of value—*the new prices are determined by the lower and wider levels of want which are ready to take up increased supply of the majority of ordinary commodities.*"

The above quotation is taken from the writings of an able economist. It has been modified at a few points to eliminate ambiguities. I think, however, that it does not misrepresent his views. In any case, it brings out a way of looking at the matter which the student should be familiar with.

(a) State clearly what is the precise point which the author seems to be trying to make.

(b) Show that it is unsound.

3. At a certain time the price of whiskey in this country was about fifty cents, the cost of producing it. The United States government thereupon levied on each gallon produced a tax of

one dollar. What naturally happened to the price of whiskey? Why?

4. From a cement factory promoter in 1901: "We can easily satisfy any fair-minded person that our proposition is a veritable gold mine. Cement can be put on the market by a well-equipped mill at a cost of about $1.75 a barrel, while it is selling for $4, thus giving a profit of over 100 per cent. With the supply of raw material practically unlimited, our mill will soon be turning out 600,000 barrels per year, and our annual profits will be nearly $1,500,000. You can't afford to stay out."

Supposing the facts to be as stated, what economic law was overlooked in drawing conclusions?

5. A certain residence in Ann Arbor is taxed each year, let us say, $42, of which sum $12 is properly chargeable to the land while the remaining $30 is chargeable to the house. Under the operation of the two principles of normal price which we have now had, the $30 will really be paid by the tenant, being shifted from the landlord to him, while the $12 will not be shifted and so, as far as the future is concerned, will remain on the landlord.

Explain how it is that things come out this way.

6. "Labor once spent has no influence on the future value of any article."

(a) Show that this is true as applied to the wooden chair which was used in working out our principle.

(b) Does the above statement, admitting it to be true, invalidate our principle as laid down on page 247.

7. Suppose that the rare brand of tea which appears in Problem 5, page 190, is produced in China and that the Chinese government levies a tax of $50 a pound on all produced.

(a) What effect will this tend to have on its price?

(b) Who will bear the burden of this tax?

(c) Construct an output schedule under which the tax would raise price.

8. Suppose our government levies a tax of $1 per barrel on the cement which figures in Problem 1, page 251. Where will the burden of this tax tend to rest? Prove.

9. At a certain time buggies of a certain type are selling at $65, the cost of production to makers working with the poorest facilities. At the same time other classes of producers can get these buggies out in practically unlimited quantities at costs ranging all the way down to $35. What price must in the long run tend to be established? Why?

10. Suppose that the buggies which appear in the last problem go out of style so generally that the number already manufactured considerably exceeds the demand at the cost price. What will the price of these buggies tend to be under this new condition? Explain.

Section F. **Normal Price of Increasing-Cost Goods.**

We have disposed of the first sub-class of variable-supply goods, constant-cost goods; we pass now to the second sub-class, increasing-cost goods. As already brought out in Section C, the supply schedule of these goods is an increasing-price schedule, and usually regular. Combining this fact with the fact set forth at the close of Section C, that practically all general demand schedules are of the typical form—showing a demand which varies inversely as price,—it follows that the principle laid down on page 221 for the price of goods having this type of schedule applies to this case of increasing-cost goods. That is, the price of such goods must tend to be one which coincides at once with the marginal demand price and the marginal supply price. But, again, as was brought out in Section C, the supply prices of a commodity of this class are the different marginal costs of production, while the demand prices are expressions of the marginal significances of the several amounts given in the schedule. It follows, therefore, that, in our formula from page 221, we may substitute for the phrase "marginal supply price" the phrase "marginal cost" and for the phrase "marginal demand price" the phrase "marginal significance." Accordingly, our principle for this case of increasing-cost goods is as follows.

Principle. *The normal price of increasing cost goods, the continued production of which is demanded, tends to be a price which both expresses the marginal significance of the output and equals its normal marginal cost.*

Note: In the above formula the word "normal" is inserted before marginal cost to anticipate an objectionable interpretation which some have made. It is this that the marginal cost is *literally the greatest* cost at which production is being carried on, including cost to producers who are quite behind the times in methods and facilities and are perhaps losing money all the time but have no other alternative than going on until they are completely bankrupt. Such persons are not marginal producers in any proper sense. They are wholly abnormal elements, having little or no significance in the case. Since by hypothesis they do not quit production when it becomes unprofitable, their cost is not a determining factor in respect to price.

Caution: If either or both of the schedules involved in the case here considered are more or less discontinuous, price will not necessarily coincide exactly with either marginal significance or marginal cost; but it will be in so far fixed by both of these that, on the one hand, it must not go above the marginal sig-

nificance nor down to the first extra-marginal significance, while, on the other hand, it must not go below the marginal cost nor up to the first extra-marginal cost.

To illustrate this principle, let us suppose that the accompanying table represent sthe same portion of each of three different

Demand 000,000 oz				Price cents	Supply 000,000 oz			
Sch.D‴	Sch.D″	Sch.D′	Sch.D		Sch.S	Sch.S′	Sch.S″	Sch.S‴
210	190	230	210	60	310	330	290	270
220	200	240	220	59	300	320	280	260
230	210	250	230	58	290	310	270	250
240	220	260	240	57	280	300	260	240
240	230	270	250	56	270	290	250	240
240	240	280	260	55	260	280	240	240
240	250	290	270	54	250	270	230	240
240	260	300	280	53	240	260	220	240
250	270	310	290	52	230	250	210	230
270	290	330	310	50	210	230	190	210
260	280	320	300	51	220	240	200	220

normal supply schedules and three different normal demand schedules for silver. Combining Schedule S with Schedule D, it is evident that price must tend to be 55 cents, since only this price secures equality of demand and supply. Further, this price of 55 cents expresses the marginal significance of silver, and the next price above, 56 cents, equals the first extra-marginal cost. So, also, this price of 55 cents equals the marginal cost of producing silver, and the next price below, 54 cents, expresses the first extra-marginal significance. That is,price appears to be fixed in its position by each of the four determinants which were discussed in the last section of the preceding chapter. Price is fixed as low as 55 cents, because that price is the marginal demand price and because the next higher one is the first extra-marginal supply price. So, price is kept as high as 55 cents, because that price is the marginal supply price, and because the next lower one is the first extra-marginal demand price. If, now, we combine Supply Schedule S with the second and third demand schedules, D′ and D″, in succession, we discover that the price changes each time, and that each time the new price fulfils the same conditions as the old one;—that is, it both

expresses the marginal significance and equals the marginal cost, while it is just below the first extra-marginal cost, and just above the first extra-marginal significance. In like manner, if we combine demand Schedule D with the other supply schedules, S′ and S″, in succession, we again find price changes each time; and further the new price, as before, coincides with the marginal significance and also the marginal cost of production, and is just below the first extra-marginal cost and just above the first extra-marginal significance.

The fact just brought out that, in the case before us, every change in either the supply schedule or the demand schedule promptly brings about a change in price and that the new price in each case fulfils the conditions of bearing a certain relation to the marginal and first extra-marginal significances and a certain relation to the marginal cost and first extra-marginal costs, would seem to prove conclusively our contention that, in the case considered, marginal cost and marginal significance are both playing a vital part in price-determination. But I am tempted to try to establish this point still more thoroughly, in view of the fact that one group of writers are wont to insist that, in this and all cases of producible goods, price is really determined by marginal significance only,—cost merely adjusting itself to a price thus determined; while another group is wont to insist that, in all cases of producible goods, price is really determined by marginal cost only,—marginal significance merely adjusting itself to a price thus determined Now, there can be no doubt that it is possible to have cases with respect to which it can properly be affirmed that significances or utilities only are determining price while marginal cost in adjusting itself to a price thus determined. So, also, it is possible to have cases with respect to which it can properly be affirmed that costs only are determining price, while marginal significance or utility is adjusting itself to a price thus determined. Section D gave us a product of the first sort in the rare brand of tea; while Section E gave us one of the second sort in our wooden chair. But the case before us surely does not belong to the same class as either of these. The test used to determine the matter in the case of the tea was to change that part of the cost schedule which included the actual price by making supply constant for a space both below and above said price,—thus insuring that actual price should not coincide with marginal cost unless the former was changed

by the change in conditions. Since actual price was not thus changed and, so, did not coincide with marginal cost, we had to conclude that cost was not playing a necessary role in the determination of actual price. In the case of the chair, on the other hand, we made a similar hypothetical change in the demand schedule. by which change it became constant for a space both above and below the price corresponding to the actual price, —thus making it impossible for actual price to coincide with marginal significance, unless the former was changed by the change in conditions. Since actual price was not thus changed and, so, did not coincide with the marginal significance, we had to conclude that, in the case considered, marginal significance was not playing a part in price-determination. Now, if tests similar to these be applied to the case before us, the results will be quite different. If, for example, starting with Schedule D we make demand constant from 57 cents down to 53 cents, as in Schedule D'"—the supply schedule used in both cases being S—, the actual price promptly drops to 53 cents, showing that demand prices and, so, the significances or utilities which they express were playing a part in fixing our original price of 55 cents. Again, we get similar results, if we try a similar experiment with the supply schedule. Thus, if, starting with Schedule S, we make supply constant from 53 cents to 58 cents, —the demand schedule use in both cases being D—, actual price promptly rises to 57 cents, showing that supply prices, costs of production, were playing a part in fixing our original price of 55 cents.

Note: In the preceding discussion I have insisted upon affirming that normal price must both equal marginal cost and express marginal significance. But it is possible to argue that, in making up a formula, either one of these determinants might be chosen and the other omitted, on the ground that *either implies the other*. That is, it might be sufficient to say that the normal price of such goods must equal their marginal cost of production,—not mentioning marginal significance—, for the reason that no marginal cost of production could be settled upon until one had been reached which coincided with marginal significance. So, on the other hand, it might be sufficient to say that the normal price of goods of this class must equal their marginal significance,—not mentioning marginal cost—, for the reason that said marginal significance could never be really settled upon until one had been reached which coincided with marginal cost. In other words, in saying either of these things we necessarily say the other. No doubt this is true. But the

objection to it is that, if we affirm the relation of price to either of these making no mention of the other, there is always danger that we shall be understood to mean that the one we do mention has the whole work in its hands to the exclusion of the other. There is really a considerable ellipsis in our own statement of the case. That is, to express ourselves with precision we ought to say that the normal price must in the long run be as low as the marginal utility and not be as high as the first extra-marginal cost, at the same time must be as high as the marginal cost and must not be as low as the first extra-marginal significance. In the opinion of the writer, anyhow, it is unsafe to carry the ellipsis further.

Illustrative Problems.

1. Suppose that the production schedule of silver reads as follows: at a marginal cost of 55 cents, 170 millions ounces can be furnished; at a marginal cost of 56 cents, 175 millions ounces; at 57 cents, 180 millions; at 58 cents, 185 millions; at 59 cents, 190 millions; at 60 cents, 195 millions; at 61 cents, 200 millions; at 62 cents, 205 millions; at 63 cents, 210 millions; etc. Suppose, secondly, that the demand schedule is as follows: 160 millions ounces wanted, if price is 65 cents; 165 millions, if price is 64 cents; 170 millions, at 63 cents; 175 millions, at 62 cents; 180 millions, at 61 cents; 185 millions, at 60 cents; 190 millions, at 59 cents; 195 millions, at 58 cents; 200 millions, at 57 cents; etc.

(a) Make out a table giving the ultimate demand and supply schedules.

(b) What must price tend to be? Prove.

(c) What will it tend to be if demand moves up two steps, becoming: 170 millions wanted if price is 65 cents; 175 millions if price is 64 cents; and so on. Prove.

(d) What determines price in these two cases?

2. "At the present time (1896) silver is being produced at a marginal cost of approximately 65 cents per ounce. But the price of silver is in the long run determined by its marginal cost. Hence it is ridiculous to expect that the adoption of free coinage by the United States will raise the price of silver, as measured in gold, to $1.29 per ounce, or any other figure above 65 cents."

Admitting that the normal price of silver must in the long run coincide with marginal cost, still the above conclusion is unsound. Explain.

3. Starting with Problem 1, in its original form, suppose that the government puts on every ounce of silver costing less than 50 cents a tax of 4 cents. This tax will of course be paid in the first instance by the producers of silver.

(a) Will it be borne by them in the end or be shifted to consumers? Give the argument.

(b) What will the new price be?

(c) Compare this result with that appearing in Problem 8, page 253.

4. Suppose the government were to levy a tax of 4 cents per ounce on *all* silver produced; and answer the same questions as under Problem 3.

5. Suppose the production schedule in Problem 1 to be changed so as to read as follows: at a marginal cost of 55 cents, 175 millions ounces can be furnished; between 55 cents and 59 cents no change is possible; at a marginal cost of 59 cents, 500 millions ounces can be furnished; at 60 cents, 525 millions ounces; and so on.

(a) What would price tend to be when the demand schedule was the same as in Problem 1 (b)? Prove.

(b) What would price tend to be if the demand schedule were moved up as in Problem 1 (c)? Prove.

(c) What would price tend to be if the demand schedule were moved up two more steps so as to begin: 190 mil. oz. wanted at 65c.? Prove.

(d) What is the point to be made?

6. The author of a recent text-book in Economics expresses himself on the relation of cost to price in this vein: In the case of reproducible goods, "cost of production seems of commanding importance.' "In fact, however, marginal efficiency (utility) is the real determinant of price," "cost of production adjusts itself to this." "There is an abundance of silver below the surface that is not mined because it will not pay; if the marginal efficiency or value of silver should rise, these more expensive grades would at once be marketed and the new marginal cost of production would adjust itself to the price."

(a) Construct a sentence running parallel to the last one quoted, but exactly reversing the roles of marginal utility and marginal cost, whereby it would seem to be proved that marginal cost really determines price while marginal utility merely adjusts itself to price. The sentence should start out something like this: "Generally speaking, it would seem as if marginal utility chiefly regulated price. In fact, however, marginal cost is the real determinant; marginal utility adjusts itself to this. Below the present demand for silver there are numerous layers of demand which are now merely potential because the corresponding utilities are below the present market price; if, now, the marginal cost of producing silver should fall, and so the price should fall, these lower layers of demand, etc. . . ."

(b) Show that both the original quotation and our substitute are inadequate. Construct imaginary schedules to illustrate your argument.

Section G. **Some Special Cases of Normal Price.**

The general principles governing normal price have been brought out in the preceding section. But there are some cases

which need to be recognized as special cases and given special treatment. Some, on account of peculiar complications, are not provided for at all in the preceding matter. Others could be fairly covered by a careful interpretation of the principles already laid down; but, because of peculiarities, unless further explanation is given there is danger of misunderstanding. In still other cases, there is reason for attempting a special statement, because, although the principles already laid down quite plainly apply to the case under consideration, it is possible for various reasons to go deeper, to find some more ultimate statement of the forces determining price than has already been brought out.

1. Joint-Cost Products.

In the case of not a few producible goods, we strike a special complication due to the fact that *several different commodities emerge from the same productive process.* Thus, the dairyman is more or less responsible for the production of milk, butter, cheese, beef, and hides. In our day, cases of this sort have increased greatly in number because of the scientific and industrial development which has made possible the utilization of so-called by-products. A familiar illustration is that of the refining of petroleum, which yields not only common illuminating oil, kerosene, but also vaseline, gasolene, naptha, etc. Again the coal tar resulting from the distillation of coal for the making of gas gives us a whole line of by-products, including various drugs, perfumes, a large number of dyes, etc. Now, it is evident that in cases like these it is difficult, if not impossible, to isolate the share in the cost of production which is properly chargeable to each of the several products. This being the case, we surely cannot apply to these goods, without some special qualification, the principle which has been laid down for other producible goods.

The special theory of this case which was set forth by Mill has been in general accepted. It is that the price of each of the individual products must be such as to equalize supply and demand for that product; while the money value of the whole group of products must equal their cost of production. In consistency with the modern analysis which goes behind demand to significance or utility, we should slightly modify Mill's formula, getting it into the following shape.

CHAPTER IX. NORMAL PRICE

Principle. *The price of each member of a group of joint-cost products tends to be that price which expresses the marginal significance or utility of the quantity of that particular product which is put upon the market, provided that the sum of the money values of all products of the group tends to equal their joint cost of production.*

The argument in support of this principle is as follows. First, as respects the affirmation that the price of each member of each group of products must be such as to express its marginal significance, this follows from the fact that, under the conditions given, the quantity of each of the products is virtually fixed, and hence it comes under fixed-supply goods. This, of course, does not mean that the supply of each commodity is literally unchanging; but that its changes do not take place in response to conditions which affect that commodity itself only, but rather in response to conditions which affect all the commodities of the group. Whenever, therefore, the price of any one of them is in process of determination, the supply of that particular one is in effect a fixed supply; and hence the principle governing its price is the one which regulates the price of fixed-supply goods. But the principle in question makes the regulation of price for these goods a question of marginal significance; and, so, marginal significance governs the case before us.

We have seen that the price of each member of a joint-cost group must be determined under the principle governing fixed-supply goods, that is, by its marginal significance. It is, however, no less certain that the prices of all the members of the group must be such that the sum total of their money values will equal their joint cost of production. This result is bound to be brought about through processes already thoroughly familiar. If at any point the sum total of the group prices rises above this total cost of the group products, capital will move into the industry involved, supply all along the line will increase, marginal significance will fall, and so prices will fall. Conversely, if the total costs are not covered by the total values, capital will withdraw from the industry involved, the supply of the several commodities will fall off, their marginal significance will rise, and so prices will rise. Doubtless the process whereby this result is brought about would be much more complicated, and hence much slower, than in the case of isolated individual prod-

ucts. It is certain, however, that, in the long run, the readjustment described would be brought about.

ILLUSTRATIVE PROBLEMS.

1. Enumerate some products of a Michigan farm which might be thought of as by-products.

2. Discuss the question as to whether the transportation between Detroit and Jackson of products of quite different types, for example, coal and dry goods, truly gives rise to a case of joint-cost products.

2. Diminishing-Cost Goods.

If the wooden chair, the output schedule of which was presented in Chapter 4, page 121, is taken in the earlier stages of this output schedule, it gives us a case of diminishing-cost goods; that is, in that stage the more output producers try to furnish, the smaller is the cost per unit. This case we sometimes treat as giving us a third sub-division of variable-supply goods. But this procedure is hardly justifiable for the reason that, in laying down any scientific principle, we assume conditions to be substantially unchanging and hence the general principle that price tends to equal cost, if properly interpreted, is really adequate for this case. That is, said principle is adequate, provided we remember that the cost of production which is meant in our principle is the cost which is representative at the very time involved not at an earlier or a later date. Nevertheless, as this case is one of considerable practical importance, it seems to deserve some comment. Hence we give it a place among these special cases.

The theory of this case is comparatively simple. So long as the demand for commodities such as we are considering is still relatively small, persons producing them are obliged to employ expensive methods of production, and, hence, cost and, so, price is high. Presently, demand shows a large increase; and, in consequence, producers are able to realize the various gains of large-scale production, with the result that cost, and, so, price is greatly diminished. Accordingly, if we wish to look at the period which includes these changes as a totality and state the law which governs that period as a totality, we have to say that price tends to equal *the lowest* of the costs of production. Put into formal shape, this gives us the following:

Principle. *The price of diminishing-cost goods tends to equal their cost to producers working on the largest scale justified by the existing conditions of demand,—monopoly being excluded.*

Note: This principle is of much practical importance in connection with the theory of investment. In the earlier stages of a new industry, while primitive methods are being employed, price will be so high that producers who are intending to introduce improvements which will greatly reduce cost, are wont to anticipate therefrom enormous profits, and perhaps will attempt to attract investors by representations to this effect. It is, however, the business of the prospective investor to remember that, just because it is going to be possible to reduce cost of production, the price itself is bound to fall, and the great prospective profits which are being pictured by promoters will, in all likelihood, fail to put in an appearance.

3. Fixed-Supply Income-Bearers.

Another special case which is of considerable importance is furnished by the fixed-supply income-bearer, for example, a piece of land rented for business purposes. Taking up, first, the case of income-bearers in general, we remark that, between the price of such an income-bearer and its income, there must tend to prevail at all times *a fixed ratio* approximately equal to the current rate of interest. Supposing that, under the operation of various economic forces not here to be discussed, the rate of interest on money loans is approximately 5%, then, between the price of an automobile, let us say, which is to be used for purposes of hire and the net money income derived from said automobile,—due allowance having been made, in reckoning the net income, for repairs, replacement, labor services, and so on,—the ratio is bound to be approximately 100 to 5 or 20 to 1. Now, the establishment of this ratio may conceivably be brought about in either of two ways: (1) the price of the automobile having been fixed, the income may move up and down till it settles at a point which makes it just 1/20 of said price of the automobile, or (2) the income having been fixed, the price of the automobile may move up and down till it settles at a point just 20 times as great as the income. Now which will it be? This depends surely on which of the two things, the income or the price of the auto, is free to move, and so able to put itself in the required relation to the other. In the case of the auto-

mobile, the one which must do this is surely the net income; for, as we have just remarked, the price is fixed by cost of production and so is not able to move at all. The income, however, finds no difficulty moving. If the net incomes derived from renting automobiles are too large considering the price of machines, then competition will increase, and rentals, and so incomes, will decline. If incomes are too small, competition will fall off, and rentals, and so incomes will increase. Accordingly in the case of producible income-bearers, the price of the income-bearer is first fixed and *to* this price the net income is adjusted.*

Passing, now, to the case of *non-producible* income-bearers such as land, we find ourselves facing a very different problem. Here there is no cost to come into the matter. Utility only can affect price; and the particular utility which has to be considered is quite obviously the service given off by the land for a certain definite time. That is, the first thing to be fixed is, not the price of the land as a whole, but the price of a year's use of the land, *i.e.,* its income; which income, having been fixed, determines in some way the price of the land itself. But here again, as in the case of *producible* income-bearers, the relation between the price of any particular income-bearer and its income is fixed in advance† by the existing ratio between capital in general and the income therefrom. When 5 per cent is the prevailing rate of interest, we can be pretty sure that the net yearly income of a piece of ground which commands a price of $1,000 must be about $50. So far the case of the piece of ground and the automobile are alike. But, when it comes to *causation,* the cases are quite different. The income of the machine adjusts itself to its price or cost; the price of

*The student must remember, however, that the price of constant-cost goods is *not always* governed by cost. A necessary condition was expressed in the phrase, "the continued production of which is demanded," which appears in the formula on page 247 Producible income-bearers at times pass into the status of non-producible ones. But these exceptional cases will be considered later.

† This is not to say that the particular case under consideration plays no part in determining the ratio between capital in general and the income therefrom. Doubtless every transaction involving an exchange of present wealth for the right to a series of future incomes has some share in fixing the rates at which such exchanges take place. But, as we have already seen, the price-making forces come to a head, so to speak, in a particular class of transactions, *viz.,* those which are *marginal,*—those in which marginal utility or marginal cost or both are determined. Accordingly, we can safely treat almost any particular transaction involving the exchange of present wealth for a series of future incomes as one to which is being applied a ratio of exchange which has already been determined elsewhere.

the land adjusts itself to its income. We can not say: the land is worth $1,000, hence its net income must be $50. Rather, we must say: the net income of the land is $50, hence its value must be about $1,000. If, now, we formulate the point brought out in the preceding discussion, we have the following

Principle. *The price of an income-bearing property not capable of duplication tends to equal the sum of money which lent at the current rate of interest would yield a yearly income equal to the net yearly income of the said property.*

Illustration. Suppose a certain building site regularly yields a net income of $100, and that the current rate of interest on long-time loans is about 5 per cent. Then, the price of the site will tend to be as many dollars as .05 is contained in 100, *i.e.*, $2,000. (The usual procedure, when 5 per cent is the rate, is to multiply the income by 20, which is the same thing as dividing it by .05, since five hundredths equal one-twentieth.)

Illustrative Problems.

1. If a certain mining stock pretty generally yields a net income each year of $54 per share, what would its price tend to be, supposing that the usual rate of return expected in such lines of industry is about 7 per cent? Prove.

2. If the dividend of the above stock fell to $37, what would you expect the price of the stock to become?

3. Suppose you are considering the purchase of a $100 government bond, untaxed and paying 2 per cent interest. What price could you reasonably pay, if the rate commonly obtained on securities of this grade was 1.9 per cent? Prove.

4. Here is a piece of farm land which regularly yields a net income of $1,700. What would its price tend to be when the rate of interest in such lines was about 5.5 per cent?

5. Here is a site in a large city which yields a ground rent of $51,000 a year. Suppose that the Henry George ideas came to prevail in said city, so that the tax on the site named is fixed at 93 per cent of its rent.

(a) What would the price of the site tend to be when the rate of interest was about 5 per cent?

(b) What would it be if the rate of taxation were raised to 100 per cent, the rate of interest remaining 5 per cent?

6. Supposing that there were no interfering causes, what would you expect the price of a government bond bearing 2 per cent interest to do in times like these (summer 1907) when the rate of interest has been exceptionally high for many months?

7. A certain building site regularly yields a net income of

$300 a year. This fact would cause it to have what market value when the rate of interest was 8 per cent? 6 per cent? 5 per cent?

8. A certain automobile which is hired out, regularly yields its owner a clear income over all expenses of about $300 per year. With interest at 6 per cent, this fact would cause the car to have what market value? Is this a reasonable problem?

9. An automobile costs $1,200 and lasts only three years. With interest at 6 per cent and with 6 per cent added for the trouble and risk of running an automobile livery, what must an automobile earn during a year to make the business pay?

10. A certain building site is worth $22,000. With interest at 6 per cent, what surplus over other expenses must any business located on the given site pay in order to make the use of the site for that purpose profitable? Is this a legitimate problem?

Section H. **Normal Price Under Monopoly.**

The preceding discussion of price has been carried forward on the assumption that there is free competition among producers or sellers. But the student is of course aware of the fact that such free competition is by no means universal. Substantially the whole output or stock of not a few kinds of goods is in the exclusive control of a single natural or legal person. Such a condition of things is known as a monopoly. The person having such exclusive control of stock or output is said to have a monopoly. That the presence of monopoly would tend to alter the conditions determining normal price wuld be admitted by every one. Indeed, it is probable that most people think of monopoly as doing away with all normality in price. The monopolist is often supposed to fix price in a purely arbitrary way. This, however, is going quite too far. Monopoly prices, though less submissive to natural laws than competitive prices, are not, after all, altogether free from such laws. The monopolist is coerced by the conditions of the case into fixing his prices so that they conform to certain broad principles.

In the first place, it is easy to show that the monopolist can put prices so high as to make his gains smaller than they would have been if he had set his price lower. Thus, suppose that petroleum is a monopolized product, and that a section of its demand schedule is as follows: 1,900 millions gallons wanted if price is 9 cents; 2,500 millions if price is 8 cents; 3,000 millions if 7 cents; 4,000 millions if 6 cents; and so on. Sup-

pose, further, that the total cost per gallon is 4 cents, so that there is a clear profit of 5 cents per gallon if the selling price is 9 cents; of 4 cents per gallon if price is 8 cents; and so on. If, under these circumstances, the monopolist fixes the price at 9 cents, he will clear $95,000,000, whereas at 8 cents he would have cleared $100,000,000. What he gains through larger profit on each unit of product he will more than lose by diminishing the total number of units sold.

On the other hand, it would be foolish for the monopolist to go to the opposite extreme in carrying out a policy of lowering price in order to increase demand. Thus, if he puts the price down to 7 cents, he will indeed cause demand to increase from 1,900 millions to 3,000 millions; but the lowering of profit on each unit will more than offset this gain in amount sold. His net profit will drop to $90,000,000. In short, the self-interest of the monopolist will dictate that he fix on the price which insures that the product of the net profit per unit output into total output is the highest possible; and this gives us the general principle determining normal price for cases of strict monopoly.

Principle. *Broadly speaking, the normal price of any monopolized commodity tends to be that price which will secure the largest net return to the monopolist.*

A cursory examination of the preceding analysis of a case of monopoly shows plainly that the cause which hindered the monopolist from pushing price upward indefinitely was the fact that as price rose demand fell off,—in other words, demand was elastic, varying inversely as price. If demand had diminished more rapidly with increase in price, the price actually established would have been still nearer cost of production. If demand had changed less rapidly with increase in price, price would have been put still farther above cost of production. Hence the following

Corollary. *The tendency of monopoly price to rise above the competitive normal varies inversely as the elasticity of the demand for the monopolized commodity.*

It obviously follows from this corollary that every cause which increases the elasticity of the demand for a given commodity diminishes the tendency of price in said case to separate from the competitive normal. Thus, the coming out of a com-

modity which can be used as a *substitute* for some monopolized one diminishes our dependence on the latter and so makes its demand schedule more elastic.

The preceding discussion of normal price under monopoly has brought out the general principle governing this case. But it is possible to be a little more specific in the case of one particular type of monopoly which has much prominence in our day. This is known as the *capitalistic* monopoly. Such a monopoly is one which owes its origin to *the control by the monopolist of an exceptional volume of capital.* Such a condition enables a man or group of men to attain the position of monopolist, to gain and maintain exclusive control of output, largely because it enables said man or group of men *to produce more cheaply than rivals and hence drive them out of business.** But it is plain that to succeed, monopolies of this sort *must keep prices fairly low,*—somewhere in the neighborhood of *cost to outsiders;* since otherwise competitors will be continually starting up, which competitors will have to be bought out at considerable cost or driven out by destructive commercial wars. Formulating this point, we have the following

Principle. *The normal price of goods produced by capitalistic monopolists tends to approximate a figure not much above cost of production to outsiders.*

ILLUSTRATIVE PROBLEMS.

1. Suppose the demand schedule for Milton's autographs is as follows: 1 wanted at $200; 2 at $175; 4 at $150; 5 at $140; 8 at $125; 9 at $110; 12 at $100; 13 at $90; 15 at $75; and 20 at $50.

(a) If there came on the market 9 autographs, what price would they tend to have under free competition?

(b) What price if all were owned by one man?

(c) Answer the same questions, supposing the number of autographs to be 15.

(d) Answer the same questions, supposing the number to be 20.

2. When the United States Steel Company was fully organized, many independent producers desired the Trust to join with them in raising the prices of steel products. The authorities of the Trust, however, refused, thinking it expedient to maintain the old level. What do you suppose was the reason?

3. Suppose that in the "tea" problem, page 246, one of the

*Of course this is not the whole story.

conditions had been a monopoly of the production of this brand of tea. What then would the price have tended to be?

Miscellaneous Problems in Price.

1. There come on the market eleven specimens of a certain rare object to be disposed of at the best price attainable. If the demand is as follows: 1 wanted at $65; 2 more at $60; 4 more at $50; 5 more at $45; 6 more at $40; etc., what price will tend to be reached? Prove.

2. In the last problem, suppose a tax of $5 to be levied on each specimen sold.

(a) What effect on price would be produced?

(b) Who would bear the tax in the end?

3. In stating the principle that the prices of goods tend to equal their money cost of production, some writers prefer to say "cost of *re*production."

(a) Why do you suppose they have this preference?

(b) Show that, on the assumption implied in the very idea of *normal* price, the change from "cost of production" to "cost of *re*production" is at least unnecessary.

4. "If the state should inaugurate the policy of levying on the livery business a 10-per-cent income tax, the value of all plants devoted to this business would necessarily fall off 10 per cent." Criticise.

5. "Every owner of a railroad, of a patent, of a book, or of a (monopoly) property of any kind, finds that he makes more money by putting prices down to figures that are reasonable, that is, to figures which correspond to the values to the buyers of the things sold, than by keeping them up beyond those figures."—Stickney.

(a) Show that the words "which correspond to the values to the buyers of the things sold," are useless as a definition of "reasonable" prices. (Name some object which has a price greater than that one which would express the value of the object to buyers.)

(b) In the case of producible goods, what price is commonly considered a reasonable one?

(c) When "reasonable" is understood this way, is it probable that the first half of Stickney's statement is true?

(d) Point out some cases of monopoly of which the statement can be affirmed with a fair degree of accuracy.

6. The utilities of a bushel of wheat vary by one-cent differences, the costs by 5-cent differences (being 25c, 30c, 35c, etc.). When marginal utility has reached 35c or more but not 40c, what prices may prevail? What determines price under these conditions?

7. "Analogous arguments, * * * might be made with regard to municipal railways, lighting companies, and water companies.

These are all, for one cause or another, of a monopolistic character. The public enjoys no guarantee of fair treatment on account of any competition that can affect them." Adams' Finance, p. 264.

What is the doctrine with respect to competitive industries which is implied in the last sentence of the quotation?

8. "When the demand for wheat increases so as to exceed the capacity of the best land, the price of wheat rises so as to leave an excess or surplus over cost of production, and this surplus is driven into the hands of the landowner as rent by the natural competition of tenants. But, now, the high price of wheat leads to the cultivation of inferior soils, which increases the supply of wheat so as to satisfy the demand, and *thus brings the price of wheat back to its old place.*" Criticise the part in italics.

9. "Alone and lost in the desert, his last morsel of food and his last drop of water gone, he would cheerfully have given his gold, his yachts, his palaces, all his wealth, for the meager fare of the day laborer. At last the illusions which he shared with civilized society were fully dispelled. The unutterable folly of the comparative estimates which men commonly put on things became manifest. At last, on the verge of oblivion, he saw things in their true, their real, proportions." Criticise.

10. A certain man improves the opportunity offered by a growing city of 40,000 inhabitants to develop a messenger service business, from which at the end of three years he finds himself getting a net return, after allowing himself wages for management, of $700. The capital invested, which includes a bank balance of $200 which he commonly maintains, is only $500; but he has to provide for a pay roll of about $200 a month or $2,400 a year. He now tries to sell out the business, asking for it $8,750. Assuming that the good will of the business is worth $500, and that 8 per cent is a reasonable rate of interest and profit, is the price proposed a reasonable one? Does the size of the pay roll make any difference? Explain.

11. A railway lawyer is trying to prove before a court that a proposed 2 cents per mile passenger rate is unjust to his road in that it will not permit paying a reasonable profit, say 6 per cent, on the investment. He admits that this rate will be realized on the physical equipment of the road, valued at $5,000,000; but argues that the company has to provide for a pay roll of $50,000 every month and ought to earn profits on this as well. Now this claim may or may not be reasonable. It all turns on whether providing for this pay roll involves, etc. Finish the sentence.

12. The table given below contains a section from a hypothetical demand schedule for a certain producible commodity and the corresponding sections from four different output schedules. What prices might be fixed under each of the output schedules? Give the argument in each case.

OUTPUT				UTILITY (or) COST	DEMAND
SCH. A	SCH. B	SCH. C	SCH. D		
15	15	15	15	$52	9
12	12	15	15	51	9
12	12	15	15	50	12
12	12	12	12	49	12
12	12	12	12	48	12
12	12	12	12	47	12
12	12	12	12	46	12
9	12	9	12	45	12
9	12	9	12	44	15
9	12	9	12	43	15
9	9	9	9	42	15
9	9	9	9	41	15

13. "A friend of mine owns in a Chicago suburb a house and lot which used to rent for $300 a year. Last year real estate in his neighborhood had a boom, with the result that his property increased in value $3,000. In consequence he raised the rent to $480." What is the matter with the economic doctrine involved?

14. "There is a good deal of nonsense said about the power to rob the public possessed by a company which furnishes a public utility. The company can get no more than the public is willing to pay. If the public think the price too high, they will not pay it; and the company will be forced to put the price at what the public is convinced is a fair price."

(a) What is a fair price as generally understood by the public?

(b) Is there good reason to expect that the companies who furnish public utilities will sell them for fair prices, in the absence of special contract or government control? Why?

CHAPTER X.

THE FINAL THEORY OF PRICE-DETERMINATION SUPPLEMENTAL TOPICS.

In Chapters 8 and 9, we have set forth the principles governing the immediate and intermediate processes of price-determination. Of the present chapter, the first and larger part will be devoted to our final task with respectt to price, namely, the explanation of the final processes under which prices are determined. The latter portion of the chapter will be used to clear up one or two other topics connected with this subject of price or value.

Section A. **The Final Theory of Price-Determination.**

1. The Problem Stated.

More than once in previous connections, we have alluded to the need for a final theory of prices,—a theory which should undertake to explain the ultimate processes by which prices are determined. Up to this point, however, we have evaded the responsibility of explaining how any such need arises. We can do so no longer. Accordingly, we will now undertake this task.

Throughout most of our discussions of the normal price of producible commodities, it was assumed without comment that the prices of those constituents of cost for which the entrepreneur has to make a money outlay are quantities which he *finds determined once for all.* Starting out to manufacture some commodity, he learns that he must pay so much for raw materials, so much for tools and machinery, so much for labor, so much for the use of capital, and so on. In consequence of these facts, together with the fact that he has to make certain sacrifices peculiar to himself, the product which he puts on the market has to have a certain price. This way of conceiving the matter may be expressed graphically by the diagram appearing in Figure 1. In the left hand column are cost goods, that is, the materials, labor, etc., from which or through which products are made. In the right hand column, are the products

made from these cost goods. Between them runs from left to right the arrow, "Price-Determination," signifying that *the*

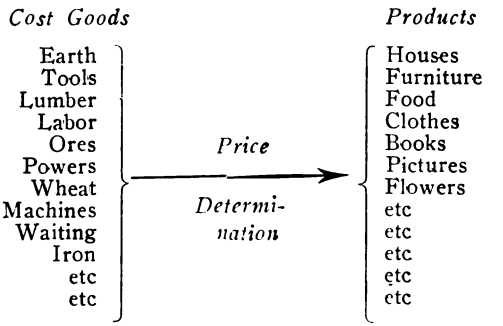

Fig. 1.

prices of the cost goods which were fixed in advance are now determining the prices of their products.

But we hardly need say that the above assumption with respect to the prices of cost goods, namely, that said prices are quantities fixed in advance, though sufficiently true for many purposes, is plainly untrue as a statement of the ultimate facts. Some constituents of cost are themselves products, and so, plainly, their prices cannot be fixed in advance, but rather must be in process of determination under the same cost principles which are determining the prices of final or consumers' pro-

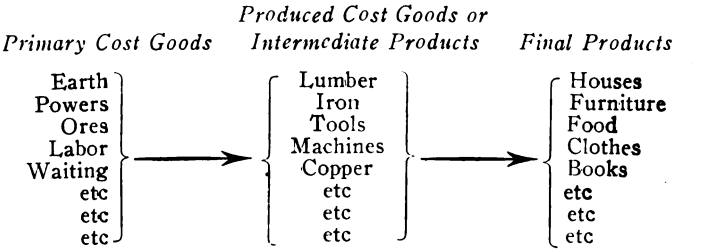

Fig. 2.

ducts. Changing our diagram so as to recognize this new phase of the istuation, it now takes on the form shown in Figure 2. Here we have three columns. Of these, the first

contains what we will call the primary cost goods, that is, factors in production which cannot be resolved into anything more primary, e.g., the soil, ores in the earth, water-power, human labor, and so on. The second contains the produced cost goods or intermediate products, such as lumber, wheat, flour, cloth, and so on. The third contains final products, products in final form for the satisfying of wants. As before, the arrows running from left to right indicate what would be the general course of causation,—provided a pure money cost theory of prices were an adequate account of the matter. That is, in our diagram, the prices of the primary cost goods are represented as antecedently fixed; being thus fixed, they determine the prices of intermediate products or produced cost goods; when, finally, the prices of these latter determine the prices of consumers' products.

But, again, it is hardly necessary to say that we are really no better off than before. We have, indeed, got rid of the absurdity of representing the prices of *produced* cost goods as antecedently fixed; but we still assume that the prices of *primary* cost goods are antecedently fixed, and this assumption is little less absurd than the former. Iron ore stored up in the earth, a favorable site for business, the soil itself, a day's labor, none of these has a particular price attaching to it from eternity. The price of every one of them is constantly being changed. Most of all, the prices of these primary cost goods are surely being influenced more or less by those very pirces which they are represented as determining. For it is quite obvious that, if final products did not have prices, intermediate ones would not have any; and that, if these intermediate as well as the final products did not have prices, primary cost goods would not have any. That is, it would seem that our diagram should have been made with the arrows running from right to left, as in Figure 3, rather than from left to right.

But, now, we seem to be up against a complete contradiction. Only a few pages back, we were saying that, in many cases anyhow, the money value of the cost goods contained in any particular product determines the price of that product. Now, we seem to be saying that the prices of products determine the prices of cost goods. Have we here two irreconcilable doctrines? Shall we have to give up entirely one or the other of these contentions? By no means. It is entirely possible, in fact quite cer-

tain, that causation is moving in both directions. Two sets of forces are bound to have a share in determining price, one starting from the supply side, one from the demand side. At some

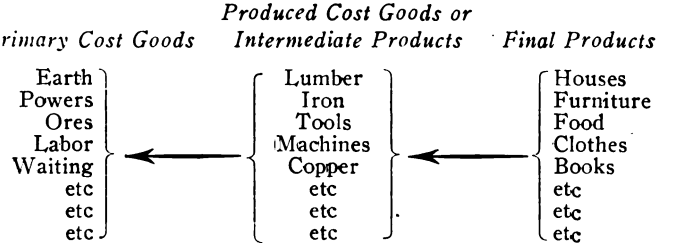

Fig. 3.

points, the forces from the supply side will for the moment constitute the decisive factor. At other points, those from the demand side will hold this place. But the final resultant, when equilibrium has been established, will be one in the determination of which forces from both sides have participated and this brings us to see that our problem has really taken on a different form from what it seemed to have at the outset. Then we thought of our present problem as being *the completion of the task already started.* That is, we *had* studied the prices of products, *we were now to finish* our work by studying the prices of the primary cost goods entering into these products. But from our new point of view, it has become plain that our present problem is not a new problem at all, but rather our old problem studied in a deeper way. We are still trying to find out how the prices of products are determined, only we are now looking for the really *ultimate* solution instead of the merely provisional ones with which we have thus far contented ourselves.

2. First Approximation.

Hypothesis:—One Primary Cost Good, No Disutility Cost, Supply or Output of Primary Cost Good Fixed.

In order to make our task reasonably easy, we will start with a hypothesis of highly artificial simplicity and by successive modifications bring it into something like correspondence with the real world. In this opening hypothesis, we will suppose (1) that there is but one primary cost good, call it L; (2) that there is just so much of this primary cost good available, no more

and no less; (3) that no disutility, no sacrifice, on our part is involved in producing or employing this cost good; (4) that our stock or output of this primary cost good is devoted to producing directly six products, P_1, P_2, P_3, and so on; (5) that these products have marginal utilities of \$120, \$80, \$48, \$24, \$12, and \$4, respectively; and (6) that these products contain, respectively, 12 units, 10 units, 8 units, 6 units, 4 units, and 2 units of our original cost good L.

Let us ask, now: What, under the conditions given, would tend to be the prices of P_1, P_2, P_3, etc. and the price of Ls, and what would be the course of causation in the determining of these prices? Putting into tabular form those data from the above hypothesis which are most essential to the answering of these questions, we have the table below. (M S stand for marginal significance.) Here the course of technical causation, production,

12Ls	produce 1P_1	having M S	\$120
10Ls	produce 1P_2	having M S	\$ 80
8Ls	produce 1P_3	having M S	\$ 48
6Ls	produce 1P_4	having M S	\$ 24
4Ls	produce 1P_5	having M S	\$ 12
2Ls	produce 1P_6	having M S	\$ 4

is from left to right, from Ls to Ps. But what about price causation? Since we have the first appearance of a money expression in the third column, the marginal significance column, and since the marginal significance of things is surely a necessary ground for the existence of price, our first thought might naturally be that price-causation begins here. That is, the marginal significance of any one of these products would first be determined and expressed in terms of money; this money expression of the marginal significance of the product would then determine the price of that product; when, finally, the price of said product would determine the price of the Ls entering into it. In fact, not a few writers have at times seemed to say something very much like this in respect to the determination of prices under the present order. Supposing, for a moment, that such a theory were sound, the course of price-determination would, in that case, be as shown in Figure 4. Here we have six independent lines of causation all running from right to left, each beginning with the marginal significance f the product, going from this to determine the price of that product, then from this to determine the money value of the Ls entering into said product, and, finally,

from this to determine the price of a single L, as appearing in that product.

But, now, it hardly seems necessary to say that such a course of price-determination as the one brought out in the diagram,

1L \$10 ← 12Ls \$120 ← 1P_1 \$120 ← M S P_1 \$120

1L \$ 8 ← 10Ls \$ 80 ← 1P_2 \$ 80 ← M S P_2 \$ 80

1L \$ 6 ← 8Ls \$ 48 ← 1P_3 \$ 48 ← M S P_3 \$ 48

1L \$ 4 ← 6Ls \$ 24 ← 1P_4 \$ 24 ← M E P_4 \$ 24

1L \$ 3 ← 4Ls \$ 12 ← 1P_5 \$ 12 ← M S P_5 \$ 12

1L \$ 2 ← 2Ls \$ 4 ← 1P_6 \$ 4 ← M S P_6 \$ 4

Fig. 4.

would be quite impossible; for, if it prevailed we should have six different prices, \$10, \$8, \$6, \$4, \$3, and \$2, for the same commodity, one L, in the same market, at the same time,—a condition of things which, of course, is quite out of the question. Ls can have but one price in the same market at the same time; and that price must be the lowest of the six enumerated, that is, \$2; for, otherwise, Ls could not be put to this lowest use to which by hypothesis they are put. But, if the man who was producing P_5 had to pay for the Ls used in this product only \$2 each and needed for each P_5 only four of these Ls, he surely would not be able to get for said P_5s \$12 each,—instead, \$8 would be the limit. That is, the uniform price of P_5s on the market would have to be \$8 each. Similarly, P_4, which contains six Ls could not have a price of \$24, but only one of six times \$2, or \$12. So, P_3, which contains 8 Ls could not have a price of \$48, but only one of eight times \$2, or \$16. P_2 could not have a price of \$80, but only one of ten times \$2, or \$20. Finally, P_1 could not have a price of \$120, but only one of twelve times \$2, or \$24. That is, the course of price-determination for all of these products except P_6 would have to be from cost of production towards the price of the product, rather than from the marginal significance or utility of the product to its price, then to the price of its cost good, and so on. This method of explaining the process of price-determination is represented in Figure 5.

At the top of this diagram, it is indicated that the primary

factors in price-determination, in the case under consideration, are the stock of Ls and the significance schedules of the several products, P_1, P_2, etc. These are, so to speak, the springs from

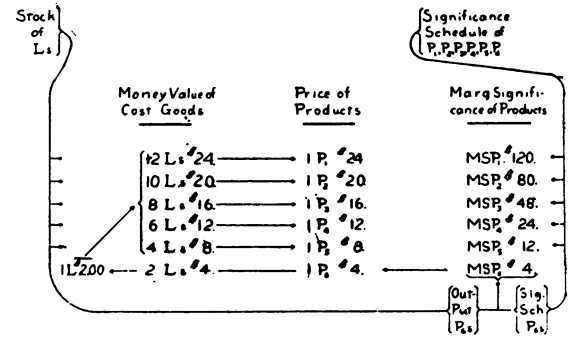

Fig. 5

which flow all the forces which in any way are concerned in price-determination. The arrows leaving these starting points, going around the main part of the diagram, and meeting at the lower right hand corner bring out the point that, however complicated the processes by which the result would be reached, under our present hypothesis, *the price-determining forces would come to a focus in the marginal significance of the marginal product.* The spur arrows which leave the main arrows on the several levels of the supra-marginal products signify that, after all, causation is setting in at other points also. The remainder of the diagram shows that, after equilibrium has been reached, *the reaction which is logically first* among the reactions set up by the interaction of the stock of Ls and the several significance schedules *is the fixing of the marginal significance of the marginal product,* P_6. That, being finally fixed at $4, would cause the price of P_6 to be $4, as indicated by the arrow going from right to left between these points. This price of $4 for P_6 would, in turn, make the money value of the 2 Ls contained in it $4, and, so, would make the price of one L $2. This price of $2 each for the marginal Ls would now be communicated to all other Ls, namely, to those Ls which are used in the higher products. In consequence, the money value of that quantity of Ls which is used in each of the several products would remain as many times $2 as

the number of Ls used in producing said product. Finally, the money value thus established for the Ls contained in each product would be communicated to the products themselves; that is, to P_5, P_4, P_3, P_2, and P_1, as indicated by the five horizontal arrows running from left to right. The disappearance of the arrows which in the former diagram ran between the marginal significance of P_1 and its price, between the marginal significance of P_2 and its price, between the marginal significance of P_3 and its price, and so on, signifies that, for these supra-marginal cases, the connection between the marginal significance of those products and their prices would, according to our amended theory, be completely broken.

Caution: In seeking to make clear the theory of price-determination just explained, it is almost impossible to avoid the coming-in of misleading implications. That is, it is almost impossible to avoid giving the impression that the marginal utility of P_6 would be first determined *independently of everything else;* that this marginal utility would thereupon determine the price of P_6 *independently of everything else;* that the price of P_6 thus determined would then fix the price of Ls devoted to its production *independently of everything else;* and so on. Now, it is surely quite impossible that anything like this should take place. No one of these things, whether the marginal utility of the marginal product or the price of any one of the various products or the price of Ls, could be determined independently of the determination of every other one of them. The marginal significance of P_6 could not be determined until the output of this product had been finally determined. In turn, the output of P_6 could not be determined until the question of the number of Ls available for this purpose had been determined. Again, the question of the Ls available for producing P_6s could not be determined until it had been decided how many of the higher products, P_1, P_2, P_3, P_4, were to be produced. Still, again, it could not finally be determined how many of these higher products were to be produced until it was known what price they were to have and, therefore, what demand there would be for them. But, since their price would be dependent on the price of the Ls entering into them, and the price of Ls would be dependent on the price of P_6, and the price of P_6 would be dependent on its marginal utility, we seem to be in a position where we are obliged to say that nothing could be determined until everything else had been determined. That is, we seem to be trying to break into a completely closed circle. And this is of course true. Nothing *could* be finally determined until everything else had been determined. As in so many other fields, reaction as well as action is present and the result must be influenced by both. Nevertheless, it is legitimate to represent the real order of causation, when everything is finally settled, in the way we have done. When at last equilibrium would

have been reached, *the starting point of this causation*—the point where the fundamental price-determining forces break into the circle—*would be in the marginal significance of the product.*

The discussion of the preceding paragraph suggests another point with respect to the case before us which is of very great importance, namely, the point that the prices of the marginal products, of the cost good L, and of the various supra-marginal products necessarily constitute a coherent, consistent, system of inter-dependent prices. No one of them is determined by itself. They are all determined as a part of one complicated system of price-determination. The doctrine, seemingly entertained by some, that the price of an individual product can be *determined by its own marginal utility independently of other things* is quite untenable. On the other hand, the doctrine, seemingly entertained by some, that the prices of particular products can be finally *determined by their costs of production, independently of everything else,* is quite untenable. We cannot too often repeat that *the price of none of the things we are dealing with can be determined finally until the price of every one is determined finally.*

We are not yet ready to leave our original hypothesis; but I wish to make a very slight change in it, by supposing that Ls, instead of being used diretly in the production of P_1, P_2, P_3, etc., are first employed in making intermediate products, from which, in turn, come the final products, P_1, P_2, P_3, and so on. For example, let us suppose that Ls are used to produce wheat; that from this wheat flour is made; and that from the flour, bread, the final consumers' product, is made. Will this introduction of a new link in the process materially alter the result? We can hardly doubt that the correct answer will be a negative one. The processes whereby equilibrium would be finally fixed would undoubtedly be much more complicated than in the original hypothesis, and we should find almost insuperable difficulties in attempting to illustrate these processes by a graphic diagram. But few persons, if any, would doubt that results substantially similar to those of the preceding case would finally be reached. When equilibrium had been fully established, the price of one L would express the marginal utility of the marginal consumers' product dependent upon it; the prices of marginal products would express their marginal significances; the prices of supra-marginal products, whether final products or intermediate ones, would be

equal to the money value of the Ls contained in them; and this price of Ls and these prices of products would all tend to constitute a coherent, consistent, system of interdependent prices.

As this simple case supplies the principle which in more elaborate and qualified form will appear in our final formula, I will present it here in what we will designate as Formula A.

Formula A. *If there were but one primary cost good and that one were strictly limited in amount or output and had no disutility cost, complete equilibrium among the price-making forces would be reached when, and only when, there had been established a coherent system of interdependent prices such that* (1) *the prices of marginal products expressed their marginal significance;* (2) *the price of the primary cost good expressed the significance of that primary cost good in its marginal product and that only; and* (3) *the prices of the supra-marginal products were equal to the money value of the primary cost goods entering into them.*

3. Second Approximation.

Hypothesis:—One Primary Cost Good, A Disutility Cost, Supply or Output Variable.

We have worked out a formula for the final determination of prices, including the prices of products both intermediate and final, and that of the primary cost good, on the simple hypothesis that there is but one primary cost good, that the stock output of that cost good is absolutely fixed, and that it has no disutility cost. The clearing up of this case was almost indispensable as a means for making the formula which applies to the more complex conditions of real life, even intelligible; but I hardly need remark that this hypothetical case which we have been studying is very far indeed from representing the facts of life. Let us now bring our hypothesis a step nearer to those facts by supposing that Ls, instead of existing in a fixed amount, or coming forth each year in a fixed output, come into existence through human choice and that their production involves a disutility cost which increases directly as the quantity. Will this new element of real cost modify the ultimate laws which regulate the value of products? The answer depends on what choice we make among three possible subordinate modifications of our hypothesis. We may suppose (1) that our wants are so numerous and our capacities so

small that our marginal efforts make no appreciable addition to output and, so, do not affect marginal utility or value,—we are all in the position of producers in our "tea problem"; or (2) that our wants are so few and our capacities so great that we are able to satisfy absolutely all our wants without being obliged anywhere to push our productive efforts beyond the point of maximum efficiency; or (3) that the facts lie between these extremes,—our capacities and wants are so far matched that the disutility involved in production and the significances resulting therefrom vary with changes in the volume of output at something like the same rate, though in opposite directions. Now, whether or not disutility would play a part in price-determination under the simple economic order with which we started would depend on which of these three alternative conditions was characteristic of that order; for, under two of these, disutility *would* have a share in determining price, while, under the other, it would *not* have such a share. Let us, first, make this point clear.

If we start with the first of the above alternatives,—that, on account of the greatness of our wants and the smallness of our capacities, our marginal efforts make no appreciable additions to output,—it is quite certain that disutility would be shut out as a price-determinant; for, in that case, all commodities would be in the position of the rare brand of tea which figured in Section B of Chapter 9. That is, all goods would be, in effect, fixed-supply goods. For, by hypothesis, production would always be carried so far that the additions to output resulting from additional sacrifices, though worth obtaining, would not be great enough appreciably to affect supply and so not great enough to affect price. In this case, therefore, the solution of our problem already set forth in Formula A would be sufficient. Disutility would play no part in price-determination. Significance or utility alone would do the work.

Let us turn, now, to the second of three alternatives with respect to the relation between capacities and wants. Supposing that our capacities were so great and our wants so few that we were able to satisfy all those wants without anywhere pushing production beyond the point of maximum efficiency, would the final determinant of prices be significance, as before, or disutility or both of these combined? We answer that it would be *disutility alone*. The proof is easy. The essential feature of our latest hypothesis is that we should be able to satisfy every

want without pushing production beyond the point of maximum efficiency,—a condition which means that an indefinitely large output could be supplied at the lowest cost possible under a given development of technique. But this being true, all supply schedules would necessarily be of the one-price class; and the one supply price would necessarily express the disutility of production. This would surely follow from the conditions involved. Price could not be above this point; for the amount which could be produced at this figure would always be in excess of demand, and hence the competition of sellers would promptly eliminate any higher price. On the other hand, price could not go below this point; for, the sacrifice involved in production not being covered, if price went any lower, supply would disappear altogether*, and, therefore, buyers would be driven to bring price up to this point. Thus, under the third form of our hypothesis, the supply schedules of all goods would be one-price schedules, actual price would therefore have to coincide with this one price, and, so, would have to express disutility. But, this being true, actual price would obviously be unable to follow marginal significance also; and hence, in this case, disutility alone would determine price. Manifestly, these prices could never be greater than the significance or utility of the commodity involved; but they *might easily be less.* If significances and prices did coincide, this would be true becaues the former had adjusted themselves to the latter. Accordingly, if we try to set forth a complete formula for prices under this hypothesis, we shall have one something like the following:

Formula B. *If there were but one primary cost good and the supplying of that cost good involved a disutility, while, however, our capacity to supply that cost good was greatly in excess of our need, complete equilibrium among the price-making forces would be reached when, and only when, there had been established a coherent system of interdependent prices such that the price of any particular product equalled the money value of the primary cost good entering into said product, while the price of*

* It is just conceivable that the supply of the primary cost good would be furnished in more than sufficient amount, in spite of its having a disutility cost, through the influence of other motives than the reward to be obtained from its products. Thus, it might be conceived that labor was the only primary cost good, that it had a disutility cost, but that work was necessary to a man's health and, hence, man would work so much whether any reward was offered or not. This, however, is too improbable for serious consideration.

the primary cost good itself was such as to express the marginal disutility of supplying said cost good, whether it expressed the marginal significance of that cost good or not.

But we have yet to consider the third of our three alternatives with respect to the relation of capacities and wants, namely, that alternative under which significances and disutilities would vary with changes in output *at about the same rate;* so that with every increase in amount we should have a considerable increase in cost and a similar decrease in utility or significance. Taking this as our hypothesis, what would be the final determinant of the price of theultimate cost good, significance? or disutility? or both? Answer: both. Under our present hypothesis, neither marginal significance nor marginal disutility could possibly be represented as determining price, *save as either was understood to include the other.* The argument is plain. By hypothesis, both significance and disutility vary with price at something like the same rate; so that the changes in either demand or supply consequent upon price changes will necessarily be sufficiently great to bring about changes in actual price. This being true, the price of Ls could not be *greater* than their marginal significance; since, in that case, demand would fall off, leaving a supply of unused Ls to find a market by coming down in price. On the other hand, the price of Ls could not be *below* their marginal significance; since, in that case, extra-marginal uses would compete for a supply of Ls, and the higher uses would be obliged to raise the price in order to insure their own satisfaction. The case of marginal disutility is equally plain. If price were *too low* to express said marginal disutility, supply would of course fall off, causing price to rise. If price were *too high* to express said marginal disutility, the Ls which cost extra-marginal disutilities would come on the market, thus making the supply of Ls excessive and so lowering their price. From all this it follows that the formula which, under this new hypothesis, would completely cover the case much be one which results from a blending of Formulas A and B. We might state it as follows:

Formula C. *If there were but one primary cost good and the supplying of that cost good involved a disutility, while our wants and capacities were so related that the significance and the disutility of our actual output varied at something like the same rate, though in opposite directions, then complete equilibrium*

among the price-making forces would be reached when, and only when, there had been established a coherent system of interdependent prices such that (1) *the prices of marginal products expressed both their own marginal significance and the disutility of the cost good entering into them;* (2) *the price of the primary cost good expressed both the significance of its marginal output and its own marginal disutility; and* (3) *the prices of supra-marginal products equalled the money cost of the primary cost good entering into them.**

In order to bring out sharply the difference between this case and our first one which gave us Formula A, I have tried to construct a diagram which would display graphically the most important peculiarities of this case, as the diagram in Figure 5 displayed those of the first case. Such a diagram appears in Figure 6. It is, of course, quite impossible, in such a diagram, to bring out a tithe of the reactions involved in even this simple

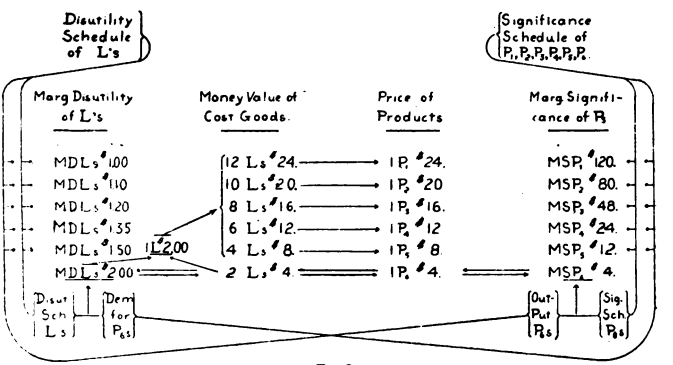

Fig 6.

case of price-determination, or even to secure theoretic consistency among those reactions represented; but this one will serve to clear up the main points of our present problem. In the diagram, we have an additional column at the left, namely, the marginal disutilities of producing the different products,—supposing them to be produced in the order of their importance. Since disutility increases with increasing output, the figures in

* The student will notice that this formula is closely analogous to the principle which was earlier laid down as governing the ordinary normal price of increasing-cost goods.

this column will get larger as we go downward. Another additional feature in this diagram is the reaction between the disutility of supplying Ls and the volume of demand for product. This appears in the lower left-hand corner. As in the case of the reaction between the significance of products and their output, this set of reactions between marginal disutility and the volume of demand *comes to a focus in the Ls which supply the marginal product* P_6. The double row of arrows in the bottom line of our tables, one of which runs to the left, the other to the right, signifies that marginal significance and marginal disutility *are reciprocalll determined.* The two arrows going to one L, in the space between the first and second columns signify that both marginal disutility and marginal significance directly participate in fixing the price of Ls.

We have seen that there are three possible alternatives with respect to the relation of capacities and wants when our hypothesis is so modified as to include the disutilities of production as well as the significances of products, and that there would be a different formula for prices in each of these cases. Which, now, of these three alternatives must be chosen as the one which most nearly realizes the conditions of real life? While there is some difference of opinion, most economists doubtless would decide for the third. The second surely must at once be eliminated. If we exclude the half-savage negroes of some tropical region, man is far from being so situated that he can easily satisfy all his wants. The only question remaining, then, is whether the first alternative represents actual life. Are we, in respect to goods in general, in the position of the producers of the very rare brand of tea? The peculiarity of the "tea case" is that wants so greatly exceed productive capacity that we find ourselves almost at the outset far down in the stage of diminishing returns:—the very small amount which we can add to output by greater expenditure has no appreciable influence on the size of the total and, therefore, does not modify marginal utility or price. I cannot believe that this pictures the facts of industrial life in general. In most industries, surely, the word of "the last hour" has an appreciable effect on the volume of output. If it were not performed, marginal utility would rise and, so, price would rise. Accordingly, we conclude that, if the real world gave us only one ultimate cost good the supplying of which involved a disutility, the prin-

ciple governing value would be that given above as Formula C; that is, the prices of products would have to be such that the value of the Ls entering into them expressed at once the marginal significance of Ls and the marginal disutility of supplying them.

4. Third Approximation.

Hypothesis:—Several or Many Primary Cost Goods, No Disutility Cost, Supply or Output Fixed.

In the preceding discussion our original hypothesis has been considerably modified; but it still shows more than one discrepancy from reality. Let us now correct one of the most important of these. Even under our modified hypothesis, there was but one primary cost good. Now, it is hardly too much to say that, in the actual world, we have to deal with scores of primary cost goods, instead of just one. It is, indeed, true that economists are wont to reduce these numerous elements to three, land, labor, and capital; and some have even put them into two categories. But this can be done only by making abstractions of more than questionable validity; and, anyhow, all admit that there are at least two primary factors. But, again, not only are there several or many different primary cost goods, these cost goods seldom, if ever, are producing by themselves. In practically all cases, several of them are jointly engaged in getting out some commodity. Now, the modification of our hypothesis which is made necessary because of these facts, greatly increases the difficulty of defending any theory as to the final processes of price-determination *which makes the significance or utility of these primary cost goods play a part in fixing their prices.* This point, being of much importance, must receive some elaboration.

Put in general terms, the essence of the difficulty is that *the participation of different cost goods in the same productive process makes the isolating of the share in the product properly imputable to each of the cooperating cost goods almost, if not quite, impossible.* The case of a single primary cost gives no trouble because, there being but one such cost good, we can easily *ascertain its economic product* and, so, can easily *ascertain what significance* or importance *should be imputed to it.* Thus, let us suppose that it takes 3 Ls, and nothing else, to produce an arm chair; and that this arm chair has a significance expressed by

$3. In such a case, plainly, 3 Ls must have a significance of $3, and 1 L, a significance equal to 1/3 of this, or $1. But, when we have *several* primary cost goods engaged in the same process, the situation is wholly changed. Thus, let us suppose that the use of a certain amount of land plus a certain amount of capital plus a certain amount of labor plus a certain amount of enterprise gives us a product having a marginal significance of $75. On the basis of this proposition we can properly say that *all the constituents taken together* have a marginal significance expressed by $75; but we can not say anything as to the marginal significance of the several constituents *taken separately*. We seem to be in a position analogous to that of a person who should try to solve an equation containing four unknown quantities without other data than those supplied by the equation itself:—given $v + x + y + z = \$75$, to find the values of v, x, y, and z, respectively. Of course, such a problem could not be solved. Can ours be? Can the several contributions of the different factors in a point process be isolated? If not, would not this fact make it impossible for us to isolate the several marginal significances of those factors? In the following pages, we shall support the negative answer to this question. In other words, we shall contend that the marginal significances of the several primary cost goods engaged in joint productive processes can be, and are, isolated. Further, we shall maintain that the prices which these primary cost goods tend to have must be such as express said marginal significances. The presentation of the particular theory as to how this is accomplished which is here advocated, will occupy the remainder of this section.

We will begin this explanation by stating in somewhat formal fashion, the general character of the theory to be maintained. *While, in a great number of cases, it is impossible really to isolate the specific technical contribution of each particular factor, yet through the automatic processes of the market there tends to be worked out a system of prices wherein each primary factor, or cost good, is given a price, which expresses its marginal significance and in so doing supplies an index with respect to its technical contribution.* In supporting this thesis, we will first argue that it is not inherently unreasonable to expect the significance of each member in a joint productive process to be isolated, even though it is impossible to isolate the technical contribution made by said factor. In order to accom-

plish this, *we will suppose a case of such nature that it would be impossible directly to trace the technical contribution of each factor.* This, of course, would be true where we were dealing with products of a chemical nature. It takes so much charcoal, so much saltpeter, and so much sulphur to make black powder. In such cases, manifestly, it would be impossible to separate the physical or technical contribution of any factor to the result. If, then, we could show that, even in such cases, it would be theoretically possible to ascertain the relative importance of each of the three contributing factors, we should thereby show that the attempt to discover the significance or importance of cooperating factors, although ignorant of their physical or technical contribution, is not in itself absurd. This we will attempt to do.

Note: What is meant by the "technical contribution" of any factor is most easily brought out by an illustration from our chapter on Combining Proportions. We there took a combination of two factors, As and Bs, and supposed the conditions to be of such a character that we could ascertain precisely the increase in the product which resulted when we made an increase in the number of Bs,—As being left unchanged. As a matter of mere technique, that increase would be credited to the added Bs. That is, the producer would behave as if he owed the increase in product to the added Bs, and, if necessary, would bid a price for the said Bs approximating said increase in product. In the latter case, we might designate the product as the technico-economic contribution of the added Bs.

In carrying out our plan of trying to show that under our hypothesis, it would be theoretically possible to ascertain the importance or significance of each of several cooperating factors even when we could not isolate their technical contribution, we will start with a simple, though very unreal, hypothesis, the working of which can be followed theoretically with comparative ease. Let us suppose that, instead of needing only one kind of primary factors Ls, we are obliged to have three kinds, Ls, Ws, and Rs; that our stock or output of each is definitely fixed; that, even after we have utilized our whole stock of each, we still have unsatisfied wants which the possible products of those primary cost goods could satisfy; and that, when our stocks of these cost good are most wisely utilized, they are devoted to the making of three products, which we will designate as P_1, P_2, and P_3, respectively. Let us suppose, further, that the proportion in which Ls, Ws, and Rs may be combined is absolutely fixed for each product and that these combining proportions

are at the same time different for each product, being 3, 2, and 11 for P^1; 4, 10, and 2 for P_2; and 10, 3, and 3 for P_3. Finally, let us suppose that, when equilibrium has been fully established, the comparative importances of a unit of our three products show a ratio of 64 to 34 to 31; so that, if P_1 were to have a price of 62 cents, P_2 would have one of 34 cents, and P_3 one of 31 cents. Now we have before us a set of conditions under which there seems to be *no possibility of directly ascertaining the technical contribution of Ls or Ws or Rs.* First, we have no cases where one or another of these produces by itself. They are always working together. Secondly, we cannot employ a method which in the present order is feasible for some cases, anyhow, and is believed by some writers to be everywhere applicable, namely, the plan of increasing by small increments the proportion of one of the factors while the others remain constant, observing the increase in product which results, and crediting that increment in product to the factor which has been increased in amount. I say we cannot employ this method in the case before us for the reason that our hypothesis shuts out all but the combining proportions named; that is, if we are going to produce P_1 at all, we must use just 3 Ls, 2 Ws, and 11 Rs; so for P_2 we must use just 4 Ls, 10 Ws, and 2 Rs; and for P_3, just 10 Ls, 3 Ws, and 3 Rs. No other combinations than these would do the work. Yet, in spite of the fact that, under the conditions named, we could not isolate in any degree the technical contribution of Ls or Ws or Rs, there can be no doubt whatever that, given the information contained in our hypothetical conditions, we could ascertain with absolute precision the real significance of Ls, Ws, and Rs, taken separately.

In the first place, on the basis of those conditions, we could set forth the following propositions with respect to the productive capacities of our factors L, W, and R:

3 Ls plus 2 Ws plus 11 Rs will produce 1 P_1
4 Ls plus 10 Ws plus 2 Rs will produce 1 P_2
10 Ls plus 3 Ws plus 3 Rs will produce 1 P_3

In the second place, if we combine these propositions with the data as to prices derived from the last condition given above, and let L, W, and R signify the money value of these factors we should have the following equations:

$$3\ Ls + 2\ Ws + 11\ Rs = 62 \text{ cents}$$
$$4\ Ls + 10\ Ws + 2\ Rs = 34 \text{ cents}$$
$$10\ Ls + 3\ Ws + 3\ Rs = 31 \text{ cents}$$

Solving these equations for each factor we have the following results:

$$\text{value } 1\ L = 1 \text{ cent}$$
$$\text{value } 1\ W = 2 \text{ cents}$$
$$\text{value } 1\ R = 5 \text{ cents}$$

That is, in view of the supposed facts, 1 L has a significance or importance to us of 1 cent; 1 W, a significance or importance of 2 cents; and 1 R, a significance or importance of 5 cents.

The discussion just completed has shown that an economic order is conceivable under which there are several primary cost goods always acting jointly in production and acting under such conditions that it is impossible to isolate the particular technical contribution of each of said cost goods, while, after all, each of these cost goods really has a specific and precise significance or importance of its own in view of its relation to product, which specific significance could easily be ascertained, supposing certain data available. There is, therefore, nothing inherently unreasonable in anticipating that by some process or other the specific significances of different cooperating cost goods would be isolated, even though their technical contributions could not be isolated.

But we have not yet finished our task. We have still to show that the several significances which the Ls, Ws, and Rs of our hypothesis unquestionably have would tend to be completely isolated and ascertained, in that the prices which Ls, Ws, and Rs would tend to have under the automatic working of the laws of price would necessarily be such prices as would express said significances of Ls, Ws, and Rs. Stated still more specifically, we have to show that our Ls, Ws, and Rs, which quite certainly would have real significances of 1 cent, 2 cents, and 5 cents, respectively, *would quite as certainly tend to have* **prices** *of 1 cent, 2 cents, and 5 cents, respectively.* The theory here advocated with respect to the process whereby this result would be accomplished, may be stated in a sentence. *The presence on the market of prices for Ls, Ws, and Rs other than those which express their true significances would itself be sufficient to set in motion a series of reactions tending to replace said prices with those which did express said true significances, namely, 1 cent,*

2 cents, and 5 cents, and these reactions could not cease till those prices had been established.

In undertaking to establish the above contention, we will begin by supposing that, at some particular time, the actual prices of these cost goods were different from the prices required to express their marginal significances, being, let us say, 4 cents for Ls, 3 for Ws, and 1 for Rs. What now would happen? First, the conditions named would lead entrepreneurs to discontinue producing P_2s and P_3s, and to devote their entire resources to porducing P_1s; for, with the prices of primary cost goods named P_1s would show a special profit of 33 cents, while P_2s and P_3s would show losses of 14 and 21 cents, respectively. But, secondly, this concentrating of all production on P_1 would throw several Ls and Ws out of use altogether; since fewer of them are needed in producing a certain number of P_1s than in producing an equal number of P_2s and P_3s. This would necessarily bring about a lowering of the prices of Ls and Ws. Further, this lowering would have to go on until it had become great enough to bring back the Ls and Ws that had been drawn off into the producing of the new P_1s; since otherwise the entire stock of Ls and Ws could not be utilized,—Rs being too few to match them unless they are used in producing P_2s and P_3s. Supposing, now, that the prices of Ls and Ws have gone low enough to bring them back from the production of P_1s,—the price of Rs being unchanged—, *another series of reactions* would promptly be set up. First, the excessively low price of Rs, combined with the fact that prices of Ls and Ws had been lowered so that they were not much above normal, would result in giving producers a considerable surplus over cost of production. But this surplus would lead producers to compete with one another for the control of the several factors of production; and this competition for the factors of production would necessarily fall entirely upon Rs, since it is barely possible to find use for our stock of Ls and Ws even at their present prices. In consequence, the price of Rs will be raised somewhat above its former level. That is, two complementary series of reactions will have been set up: (1) one lowering, in some measure, the abnormally high prices of Ls and Ws, and (2) one raising, in some measure, the abnormally low price of Rs. But, now, supposing that even these new prices are divergent from the true significance prices,—though less so than were the former

ones—, at once our twofold cycle of reactions will again be set up. For the new higher price of Rs will again make unprofitable the production of the more expensive P_2s and P_3s. Production will, therefore, again leave these commodities,—though not to the same extent as before—, and go to the making of P_1s, which procedure will once more throw out of use some Ls and Ws,—though fewer than the first time. As before, this will cause a lowering of the prices of Ls and Ws to a point which will draw them back to their former employment in making P_2s and P_3s. And, now, the second half of our two-fold cycle of reactions will again be started. Costs are still abnormally low, thus giving producers a surplus, which surplus will stimulate competition for the possession of the primary cost goods. This competition, as before, will fall entirely upon Rs; and, hence, the price of Rs will again be pulled up. And this brings us again to our starting point and sets our reaction cycle in motion once more: (1) the production of P_2s and P_3s unprofitable; (2) some Ls and Ws out of use; (3) a fall in the prices of Ls and Ws; (4) a surplus profit; (5) competition for Rs; and (6) a higher price for Rs. Thus, we have a cycle of reactions the first half of which *lowers the price of Ls and Ws,* while the second half *raises the price of Rs;* and these reactions cannot cease till all three prices are just where they need to be in order that each should express the true significance of the corresponding factor,—that is, until they are 1 cent for Ls, 2 cents for Ws, and 5 cents for Rs.

In the preceding argument for our contention that, under our present hypothesis, the automatic working of things would tend to give each one of several cooperating factors just that price which expresses its real significance, we supposed the number of both factors and products to be limited to three. This seemed necessary in order to insure a clear comprehension of the argument. But, in the real world, the different factors are scores in number and of the different products there are many hundreds. Would a corresponding change in our hypothesis alter the course of our reasoning? Surely not. There was nothing in that reasoning which depended on the number of either factors or products. This change would, of course, make the working out a slower process and would make the results less precise; but the same tendency would prevail. It follows, then, that, if our present hypothesis were an adequate representation of the

facts, we should have a principle closely analogous to the first of the three formulae, already discussed, only it would now need to be modified so as to recognize the existence of *many* primary cost goods. Precisely stated, this principle would give us the following:

Formula D. *If there were many primary cost goods, and these were strictly limited in amount or output and had no disutility cost, complete equilibrium among the price-making forces would be reached when, and only when, there had been established a coherent system of interdependent prices such that* (1) *the prices of marginal products expressed their marginal significances;* (2) *the prices of the primary cost goods expressed their significances as realized in marginal products; and* (3) *the prices of supra-marginal products equalled the money value of the primary cost goods entering into them.*

5. Fourth Approximation.

Hypothesis:—Several or Many Primary Cost Goods, Disutility Costs, Supply or Output Variable.

a. Prices of Primary Cost Goods would still tend to Express their Marginal Significances.

Thus far in correcting our original hypothesis by admitting the existence of *many* primary cost goods, we have applied this correction to the first form of our hypothesis, i. e., the form in which the stock or output of factors is fixed. But, obviously, this will not suffice. We must take into account not only the fact that there are many primary cost goods, but also the fact that not a few of these depend on human choice, and, hence, vary in quantity. Would the new modification invalidate the reasoning on which is based our conclusion that the price of each primary cost good would tend to be that one which would express its marginal significance? I think not. Though, the output of primary cost goods would be subject to modification, nevertheless *at any one time, at any moment* it would be *temporarily determinate*. Now, under the working of the processes already described, the temporarily determinate output would have its price fixed at a point which expressed its marginal significance; and the only way whereby the price thus fixed could be disturbed would be through a material change in the output of the goods in question. Such a change we have assumed to be possible and

that in response to economic motives. This could be only on condition that the price temporarily reached was above or below the marginal disutility of supplying said cost goods. Let us suppose it to be *above*. In that case, the output of said goods would be increased. But this would merely mean a *new* temporarily-fixed stock, the price of which would quickly come to coincide with its marginal significance under the working of the processes already outlined. Should this new price still prove too high, the operation would be repeated until full equilibrium had been reached and that at a price which was as low as the marginal significance.

The above reasoning assumes that the provisionally determined price, while coinciding with marginal significance, was *above* marginal disutility. It, therefore, leaves the alternative hypothesis of a price *below* marginal disutility still to dispose of. This, however, offers no difficulty. Reasoning exactly analogous to that employed would show that final equilibrium among the price-making forces could be reached only when price had come to coincide with marginal significance as before.

b. Prices of Primary Cost Goods would necessarily tend to Express their Marginal Disutilities.

We have now completed our argument in so far as it is concerned with the contention that the prices of primary cost goods would tend to be such as expressed the marginal significance of those cost goods. In spite of the difficulty or even impossibility of tracing the technical contribution of the different cost goods, things would tend to work out automatically so that the prices of those cost goods would express their true significance. Our formula, however, is not yet quite complete. We have still to provide for one other factor. When, to our original hypothesis that there was but one primary cost good, the condition was added that this primary cost good had a disutility cost, we were obliged to enlarge our formula so as to take in the point that the price of Ls would have to express *the disutility of supplying them* as well as the utility or significance of their marginal product. How about our new case at this point? Does it differ materially from the former one? I think not. Whether our primary cost goods were many or few, if the supplying of any or all of them involved a disutility cost, and if our capacities and wants had the relation which was brought out in the third alternative on page 284, the

prices of such primary cost goods as had a disutility cost would surely tend, in the long run, to express the disutilities of supplying them. For, with respect to disutilities, the new element in our hypothesis, namely, *the fact that we have several cost goods instead of one,* has no tendency to increase the difficulties of the case, as it did in the case of their marginal significances. The reason why the change from one to several primary cost goods gave us trouble in connection with the problem of their significance is that in *production,* these goods act jointly, and, therefore, it is difficult or impossible to isolate the particular contribution of each one. But, with the disutility aspect of cost goods, the situation is very different. Cost goods *engage* in production jointly, cooperatively; but they are *produced* individually. For example, we have to work, and so have to undergo the disutilities involved, *as individuals.* Accordingly, the reasons employed in our earlier case to show that prices must express the disutility involved in supplying the primary cost goods, are fully applicable to this second case. If the price of any particular primary cost good fails to be as great as the marginal disutility involved in supplying it, the supply will become deficient and price must rise. On the other hand, if the price of such cost good is greater than the marginal disutility involved in supplying it, the supply will become excessive, and the price must fall.

If, now, we summarize the results of this last discussion in a single statement as in preceding cases, we shall have the following:

Formula E. *If there were many primary cost goods and the supplying of some or all of these involved a disutility sacrifice, while our wants and capacities were so related that the significance and the disutility of our actual output varied at something like the same rate, then complete equilibrium among the price-making forces would be reached when, and only when, there had been established a coherent system of interdependent prices such that* (1) *the prices of marginal products expressed both their own marginal utility and the disutilities of the cost goods entering into them;* (2) *the prices of the primary cost goods expressed their significances as realized in some marginal product, and also the disutilities of supplying them if such disutilities existed; and* (3) *the prices of supra-marginal products equalled the money value of the primary cost gods entering into them.*

6. The Formula for Final Price-Determination Under Actual Conditions.

We have considered the process of final price-determination under a series of hypotheses, beginning with one which involved the simplest conditions and by successive changes bringing it down to the form which appeared under the preceding division. That our hypothesis as finally modified covers, in a general way, the present system, there can be no material doubt. There remains the question, however, whether there is still sufficient difference between that hypothesis and the present order to invalidate the conclusion which has been reached. More especially, were not the conditions of our hypothesis in respect to *the number* of primary cost goods and *the number* of products so extremely simplified as to destroy the soundness of our conclusion with respect to the relation between marginal significance and prices when applied to the present order? Though I must answer this question in the negative, I am quite prepared to admit that, because of the difference between the actual order and our hypothetical one which was just brought out, actual prices express the marginal significances of the primary cost goods with much less precision than they would under our hypothetical conditions, and, especially, that they follow changes in marginal significance much less quickly than they would under said hypothetical condition. Nevertheless, I should insist that this objection does not furnish sufficient ground for relinquishing the belief that, in the long run, prices of the character indicated would be substantially realized. If the theory which we have propounded depended for its workings in any considerable degree upon human sagacity, upon the skill of producers in making a nice analysis of industrial processes and in working out complicated mathematical calculations, it would be very questionable indeed whether we could expect the principle stated to have any appreciable realization in the present order. But the student will remember that our theory builds almost entirely upon the automatic, spontaneous, working of things. It is hardly too much to say that we require of producers nothing more than that they should be able to know the prices of products and cost goods, and should be able to determine on the basis of these prices what particular product they had better produce and what particular combination of factors would yield the greatest profit. Provided they can fulfil these very limited requirements, the spontaneous pursuit of their

own self interest will, according to our theory, work out automatically the result claimed. It thus appears that the mere numbers of cost goods and products, and the vastness of the scale of production, and the highly complicated character of economic relations would not necessarily furnish grounds for anticipating the failure of our principle.

If we turn to the case of disutilities the answer is not materially different. That the price of primary cost goods tends to express the marginal disutility involved in supplying them, in one sense of the word, namely, in the sense that the disutilities and the price will tend to *coincide*, probably every one will admit. Even if price were entirely determined by marginal significance it would tend to coincide with marginal disutility, since the latter would proceed to adjust itself to said price. But this sort of coincidence between price and disutility is not the one claimed in our principle. It is there meant that price must express marginal disutility in the sense that said *marginal disutility has a real share in fixing price* just as truly as has marginal significance. This means that marginal disutility plays some part both in keeping price as high as it is and in keeping it as low as it is. The difference between such a case and that of a fixed-supply or fixed-output good in which latter case the coincidence of price and cost are effected by the mere adjustment of cost to price is best seen by comparing the case of the special brand of tea with that of silver as represented on page 255. In the former, a rise of two steps in the demand schedule causes a two-step rise in price; and, so, a fall of two steps in demand causes a two-step fall in price. But with silver, a two-step rise in the demand schedule, causes only a one-step rise in price—the larger rise being shut out by increased production. So, a two-step fall in demand causes only a one-step fall in price,—the larger fall being shut out by diminished production.

This illustration brings out the real crux of the matter. Whether or not disutility has any real share in determining price in the cases before us turns on whether changes in price cause changes in output sufficiently great to alter price. Does the failure of the rate of interest to be high enough to express the capitalist's estimate of the disutility of supplying it cause accumulation to fall off till the rate rises? On the other hand, does the fact that the rate of interest has remained some time above

a rate which expresses the capitalist's estimate of the disutility cause accumulation to increase till the rate falls? If these questions must be answered in the affirmative, then in the case of one ultimate cost good—waiting power—disutility certainly plays a part in price-determination. The question is probably one which can never receive a decisive answer; but at present most persons would answer it affirmatively.

What now, is to be said with respect to the other most important cases of ultimate cost goods the existence of which depends on human choice, viz., most types of labor service? Here the test is the same as before. Do changes in wages sufficiently influence the supply of labor services to cause a reaction which alters those wages? Here it would be necessary to distinguish a short-time and a long-time normal. Some certainly, would be disposed to affirm that for periods of moderate length, the supply of labor services, particularly those of the most common type, are *substantially fixed*,—about so many days of labor will be offered whatever the rate of wages. If a price of $2 per day can be had, well and good; but if it turns out to be only $1.50, we must make the best of it. I am not entirely satisfied that this is true. I am disposed to believe that even for periods of moderate length enough laborers can, and often do, refuse to accept a wage which is below their estimate of the disutility involved in supplying the labor to cause a rise in wages or at least to check a fall. However, I will not press the matter, and surely would not claim that this is always the way things work.

As respects the long-time normal for wages, the case for our principle is more easily made and more commonly secures a verdict. In fact, the great majority of economists accept more or less fully the doctrine that in the long run, under the working of the principles of population, the wages of common labor are kept at a point which expresses, roughly anyhow, the standard generally accepted by the class interested as to what a laborer's income must be to make his life worth while. If wages are below this figure, marriages are postponed, or in other ways population is restricted, thus diminishing the supply of labor power and so causing a rise in wages. If wages are above the disutility minimum, an exactly opposite movement takes place, the supply of labor-power increases and the price of labor falls.

In the last paragraph, it was pointed out that economists

generally recognize that in the case of common labor, anyhow, the working class conception of the disutility cost of labor plays a part in fixing the long-run normal of wages. This seems far more certainly true in the case of the higher forms of labor. In these forms the workers always have as a last resort the alternative of dropping into a lower calling. The result is that each of the higher callings gradually develops a standard which is conceived as necessary by those who join its ranks. If for a time that standard is passed, then a more than usually rapid inflow of recruits from the oncoming generation makes supply excessive and causes a fall in the remuneration. On the other hand, if for a time the standard is not reached, recruiting falls off and the remuneration has to rise.

From all this it follows that, in real life, the failure of price to express the disutilities of supplying the ultimate factors *does* influence the supply of those factors sufficiently to cause marginal significance to rise or fall and, so, to cause price to rise or fall. This being true, a formula for the final determination of prices, if it is to be adequate, must include an affirmation that the prices of the primary cost goods must tend to be such as will express the disutilities involved in supplying those goods. But we have already seen that an adequate formula will affirm that the prices of the primary cost goods must express their marginal significances as embodied in consumption products. Accordingly, we are brought finally to the conclusion that Formula E, given at the close of the preceding division of this section, is substantially the correct formula for the final principle according to which, under the present order prices tend to be regulated.

Illustrative Problems.

1. Some writers are accustomed to speak as if the value of each particular kind of goods were determined by *its own* marginal utility solely.

Show that, even if it be admitted that utility is, ultimately speaking, the only cause affecting values, the position alluded to is after all quite untenable.

2. Some writers more cautious than the last are accustomed to speak as if the value of every particular kind of cost goods, *e. g.*, iron, copper, lumber, *etc.*, were determined by the marginal utility of the marginal commodity produced from it, without regard to anything else.

Show that this position also is quite untenable, though it be admitted, as before, that the sole ultimate cause influencing value is utility.

3. Some writers are accustomed to speak as if the value of every particular durable commodity were determined entirely by capitalizing its own income of money or services.

(a) Show that this is quite untenable.

(b) Show that it would still be untenable if we were to substitute for "its own income" "the income of the marginal member of its class."

(c) Make an extreme hypothesis under which it might be maintained that there was not a single case of a durable produced good in which the value of said good was what it was because the income was what it was.

4. An eminent American economist who formally rejects the doctrine that the values of the ultimate cost goods, labor, waiting, etc., are determined by their productivity, nevertheless expresses the opinion that "interest is determined proximately by the increase of product resulting from the last or marginal application of capital."

Are the two opinions consistent?

Section B. **The Labor Theory of Value.**

The student is of course aware that one of the most vigorous of the revolutionary or reform agitations of our day has for its object the establishment of an economic order known as Socialism,—meaning thereby an order in which economic cooperation should not be spontaneous as today but rather should be formal, conscious, organized,—an order in which the state should be the sole entrepeneur, as also the sole capitalist and landlord. Now this socialism is in essence merely a system of economic organization, not a body of economic doctrines. Further, one can with entire consistency advocate this socialistic order without holding any peculiar economic doctrines. Still, as a matter of fact, one or more peculiar economic doctrines have played a very great part in securing the acceptance of socialistic ideas. Indeed, without those doctrines, it seems almost certain that the scheme would have gained few converts. For the strength of the agitation has been its denunciation of the present order as grossly unjust, as one in which the real producers of wealth have been robbed almost completely by hordes of parasites in the shape of middlemen, capitalists, landowners, *et alteri*. Now, the chief theoretic basis of this contention as actually argued has been a particular theory of value together with a theory of profits which may be looked on as little more than a corollary from said theory of value. This theory of value is known as the labor theory. It teaches that

the ratio in which goods exchange is determined entirely by the ratio between their labor costs,—is in fact the reciprocal of the ratio between their labor costs. Thus, if a certain table costs 5 days' labor while 25.8 grains of gold costs a half day's labor, i. e., if the ratio of their labor costs is as 5 to ½ or 10 to 1, then their exchange ratio will be 1 to 10, i. e., 1 table will be worth 10 times 25.8 grains of gold, or, if we call the latter one dollar will be worth 10 dollars.

This illustration is particularly useful in that it enables us to make Marx's way of teaching this labor doctrine stand out with peculiar distinctness. A dollar's worth of gold costs one-half day's labor, or two dollars' worth costs a whole day. Hence a day's labor will put into any product whatsoever two dollars of value.

In interpreting this theory of Marx, the student must guard against supposing that Marx makes the value of a thing to depend on *current* labor alone. For example, if a man takes 100 feet of lumber, a pound of nails, etc., and in one day makes a shed, Marx would not say that the shed will be worth just $2. It is, of course necessary to include also the labor spent producing the lumber, the nails, etc.,—past labor. Goods of this sort are commonly called capital, and Marx so designates them and characterizes them as *congealed labor.* It is thus evident that Marx recognizes the fact that capital helps to determine values, only it is capital viewed as the embodiment of past labor.

But perhaps the student will now wonder how Marx's view differs from that of other people. The answer is that, while Marx admits the influence of capital, he does not admit the influence of the *waiting* or other sacrifice involved in supplying capital. Thus, if the lumber, nails, etc., in the above example had cost the labor of one day and a half, Marx would say that the value of the shed must be $5, i. e., $3 for the materials—congealed labor—and $2 for the labor; whereas every one knows that the materials would have cost something more, perhaps $4, because of the waiting and other sacrifices involved in supplying such capital goods.

As a clear understanding of Marx's doctrine is necessary to its refutation, we will introduce here some illustrative problems.

ILLUSTRATIVE PROBLEMS.

1. Suppose a certain stove costs 10 days' labor and a certain

watch costs 30 days. At what rate will they exchange?

2. Suppose that 10 pounds of raw cotton are produced in 2 days, that 61.63 grains of gold are produced in the same time, and that the law defines a pound sterling as being 123.27 grains of gold. How many shillings (there are 20 in the pound) should 10 pounds of raw cotton be worth?

3. Suppose that it costs a half day's labor to produce the goods commonly considered necessary to support a laborer and his family for a day, that the goods necessary for this purpose actually constitute a day's wages, that one-half day's labor will produce 25.8 grains of gold, and that the law makes 25.8 grains of gold the standard fixing the value of one dollar. What would naturally be the money wages per day?

4. Starting with the last problem, suppose that a laborer working for a whole day should produce for his employer, out of raw cotton costing 50 cents, a certain quantity of cotton yarn.

(a) How much ought the yarn to be worth?

(b) How much profit per day would the employer naturally make out of the transaction?

5. "The notion of Marx and the socialists generally that the value of a pair of shoes depends merely on the amount of labor expended on them by the cobbler without respect to the cost of the leather in them, is too ridiculous for serious consideration." Show that such language involves an entire misapprehension of Marx.

Refutation of the Labor Theory—Reading 24.

A. In the first place, as already fully brought out, there are not a few goods which have their value determined *with no reference to cost of any sort,* labor cost or waiting cost or risk cost. In this class belong all rare unproducible objects, those producible objects whose possible output is far short of demand at prices much above the corresponding costs, and, most of all, the uses of land. In all these cases marginal utility is of course the decisive factor in value determination.

B. In the second place, ordinary producible goods, though having their values determined by cost (expense), yet have them so determined *by a cost which includes other things besides labor,* notably waiting and risk. A commodity which costs one day's labor and ten years' waiting surely *must* and *does* sell for more than another commodity which costs the same amount of labor but only one year of waiting.

It would seem that this second point is too plain to need elaboration. Still, as the matter is of great practical moment,

I am disposed to make assurance doubly sure by making this point in the way which has led some of the most prominent socialists to relinquish the doctrine.

(1) In the production of any commodity, there appear two kinds of labor, *previous* labor spent on raw materials, tools, etc., and *current* labor using these materials, tools, etc.;—*congealed,* stored up, labor and *current* labor. In the outlay of the entrepreneur, these two sorts of labor appear as two kinds of capital invested in them, viz., *constant* capital—what is paid for materials, tools, etc.—and *variable* capital—paid for labor-power.

(2) If the labor theory of value were true, the entrepreneur could get a profit on his *variable* capital, but *on that only.* (*a*) He could not get a profit from the constant capital, since he buys it directly at the market price, and its value, being determined by its labor cost, will be just the same to him as a buyer as it will be to him when he becomes a seller. To illustrate, suppose that Mr. A is engaged in producing a commodity which costs three days' labor, two of previous labor spent on raw materials, etc., and one of current labor; and suppose that a day's labor will produce 51.6 grains of gold, i. e., $2 of value. Then, the value of the completed commodity will, of course, be $6, since it costs three days' labor. Further, it is obvious that of this value two-thirds, $4, must be credited to the *previous* labor (the congealed labor, the *constant* capital), since the latter is two-thirds of the whole labor. But the market value of this congealed labor (materials, etc.), must have been $4, being determined by a labor cost of two days. It must, therefore, cost Mr. A $4. Thus he puts into constant capital $4 and gets out of it $4. *His constant capital, therefore, yields no profit.*

(b) Mr. A could, however, get a profit out of his variable capital, i. e., the portion spent on current labor. For, while the value said labor adds to the raw materials, etc., is $2, its own purchase price, the price Mr. A has to pay for it, is something different, being determined by *its* labor cost, or rather the labor cost of the power to furnish it, i. e., the *labor necessary to produce the subsistence of the laborer.* If we suppose this to be one-half a day, then the entrepreneur will be able to buy labor (labor power) for $1, and then get out of it a whole day's labor, and therefore get out of it value to the amount of $2. Thus, from a total expenditure of $5, he gets a commodity which sells for $6, and so realizes a profit of $1. But this dollar, it is

plain, was entirely derived from his variable capital, the constant portion having yielded nothing.

(3) It is, however, quite impossible that a condition of things which secures a large return to variable capital and no return to constant capital should continue. In the case above considered, Mr. A gets 20 per cent on his investment. If he had been engaged in an industry requiring one unit of previous labor to two units of current labor, these would have cost him $4, making his profit $2 or 50 per cent. If the three days of labor had been one-half day of previous labor and two and one-half days of current, then their cost would have been $3.50, making his profit $2.50 or 70+ per cent. On the other hand, had the three days' labor been divided into two and one-half days of past and one-half day of current labor, their cost would have been $5.50, leaving him a profit of only 50 cents or 9 per cent.

Manifestly such a state of things could not continue. Capitalists would all flock to the industries returning high rates,—those using much current labor, i. e., much variable capital. As a result, prices in these industries would fall; while, in those using little current labor, i. e., little variable capital, prices would rise. In a word, prices would in the one case be lower than labor cost would have made them, and in the other case would be higher. That is, *exchange values would not be determined by labor.*

Note 1. Some economists, more generous than accurate, have declared that Marx, the socialist who is considered most responsible for the doctrine, did not mean that values *are* determined by labor cost, but merely that they *ought* to be so determined. This entirely misses the point of what is styled "Scientific Socialism." That socialism claims to discuss the facts and natural laws of *the present order,* and to show that the unhindered working of those laws brings about certain undesirable results. Its whole argument is pointless save on the assumption that it is dealing with actual principles. If values are not *here and now* determined by labor cost, the whole proof that capital gets a surplus actually produced by labor falls to the ground.

Further, such an interpretation of Marx must ignore his own explicit statements. Thus, he says: "We see, then, that that which determines the magnitude of the value of any article is the amount of labor socially necessary, or the labor time socially necessary for its production." Chap. I, Sect. 11; or again: "The price, then, is merely the money-name of the quantity of social labor realized in his commodity." Chap. III, Sect. 2; or again: "We know that the value of each commodity is determined by the quantity of labor expended on and materialized in it by the

working-time necessary, under given social conditions, for its production." Chap. VII, Sect. 2.

Still further to refute this notion that socialists do not really teach the labor theory, we have the fact that the most recent expositions of their ideas contain the old doctrine. Thus in 1906 John Spargo, a prominent socialist lecturer, wrote a book on socialism in which we find these words: "The exchange value of commodities is determined by *the amount of average labor at the time socially necessary for their production.*" p. 196. Further, Spargo quotes with hearty endorsement a two-page exposition of Marx's Surplus Value theory of profits by another socialist, Algernon Lee, in which exposition the labor theory of value is made to play the same role as in the original presentation by Marx.

Note 2. The student must not imagine that socialism as a project of reform stands or falls with the labor theory of value. The movement has not a few able advocates who frankly repudiate the Marxian economics. Socialism is essentially a scheme of social organization for economic ends. As such a scheme, it deserves to be considered on its own merits, without respect to the entirely untenable doctrines with respect to the present order which its advocates have commonly held. Nevertheless, there can be no doubt that the general rejection of Marxian economics, which must surely come, will weaken the socialist movement. For, as already noted, the strength of the movement has depended, in large measure, on grossly exaggerated statements as to the unreasonableness and injustice of the present order, and these statements have been founded on the labor theory of value.

CHAPTER XI.

SOME SPECIAL CASES OF PRODUCTION.

Almost at the beginning of our study, in Chapter II, we discussed the true nature of production as understood by the economist. At that time we emphasized strongly the breadth of the concept, showing that every act tending to increase utilities, if done in response to an economic motive, is a productive act. Putting the matter in slightly altered shape, it was said that every act which overcomes any one or more of the many obstacles which lie between our wants and their gratification is necessarily a productive act. Still again, changing slightly our statement of the matter, it may be said that every sort of action which plays a part, performs a function, in the working of the present economic order, is truly productive. These considerations would seem to furnish adequate criteria in deciding whether or not any particular activity is productive. We have only to settle whether that activity increases utilities or removes some obstacle to our gratifications or performs some function in the general economic order. Further, the application of these or similar criteria would seem to be sufficiently easy to render needless any further discussion of this matter. In fact, however, it is not always the simplest matter in the world to discover just what function a particular activity performs; and, anyhow, common opinion has so long doubted or denied the productivity of certain lines of business that some special discussion of these particular cases seem almost necessary at some stage of our study of elementary economics. The present connection may be taken as furnishing a fairly satisfactory opportunity for attending to this task.

Section A. Insurance—Is It Productive? Has It a Real Economic Function?

A discussion of this question is doubtless less necessary than a generation or two ago when not a few persons looked on this business as little removed from gambling. Even now, however, many persons who consider insurance quite legitimate would

hesitate to call it productive. There is no ground for such hesitation. Every business which furnishes a service of any sort, which performs any function called for in the economic order, is productive. And insurance certainly performs such a function. That function is to provide for the bearing of the risk burden characteristic of economic relations in such a way that that burden will be most easily borne, will work least economic injury. If insurance does this, it surely creates utilities, performs services. That such is the work it accomplishes is easily shown. The essence of insurance is the pooling, putting into one mass, of a large number of risks, in other words, acting as one person in the bearing of risks. By doing this we substitute a series of certain small losses for a chance of a great loss. To illustrate, suppose we take 1,000 houses, owned by 1,000 persons, each house worth $2,000. To each owner the burning of his house would mean a loss of $2,000; and, since nothing can be known in advance as to the likelihood of its burning, each owner's constant risk equals $2,000, the entire value of his house, one hundred per cent. But, if all these houses be taken together, the case is very different. From statistics as to the past working of things we can be sure that, say, three but not more than three out of the thousand houses will burn each year, and so that the total risk on the houses, the risk on the whole number taken together, is only $6,000 per year on a total value of $2,000,000. Distributed over 1,000 owners this means a payment of $6 per year. Thus by making small payments every year a man may get rid altogether of the risk of losing $2,000. This surely is a profitable transaction. A real utility has been created. The probable efficiency of industry has been enhanced; since the injury or burden to industry as a whole due to the collecting of a series of small anticipated payments from all owners is vastly less than that which would result from an unexpected loss of $2,000 falling on each of three persons each year. The operation is therefore productive.

Note: This making a regularly recurring payment to avoid the chance of a great loss is in no sense gambling. Gambling is the assumption of needless risk. Here the risk is unavoidable.

The preceding discussion has justified only mutual insurance, insurance where the insured co-operate. Is the case of Speculative insurance—company insurance—good? Surely, yes. There is no essential difference between the two cases All insurance

is mutual, *i. e.*, it is only through the pooling of the risks of many owners that insurance is possible. The real program, the general plan, is the same in both co-operative and company insurance. The only difference is in the process of carrying out the program. On the co-operative plan, the insured themselves undertake to effect and manage their mutual insurance. On the company plan, an outside body undertakes this job, *i. e.*, the effecting and managing of the mutual insurance. In doing this, the company obviously furnishes a service additional to that of mere mutual insurance, *i. e.*, it performs the regular entrepreneur function and so in a twofold sense produces wealth.

ILLUSTRATIVE PROBLEMS.

1. Suppose 1,000 owners of 1,000 buildings worth each $7,000 wish to insure themselves against fire. If the risk for the class of buildings involved is such that 7 out of 1,000 burn down each year, what annual payment from each owner would be necessary to insure all against total loss,—expenses of management, interest, etc., being ignored?

2. Suppose 1,000 persons propose each to save for his family before his death, $2,000. All are twenty-five years of age. Knowing that anyone is liable to die before he has had time to save so much, they combine to insure one another that $2,000 shall be ready for the family even if death comes before that sum has been regularly accumulated. Assuming that the organization is continuous, new members joining as old ones pass away, and, assuming the average annual death rate to be 18 in 1,000, what annual payment would each one need to make,—expenses of management, interest, etc., being ignored?

3. Suppose that a certain corporation owns 500 buildings worth each $100,000; that to insure in an ordinary company would cost the corporation $250 a year on each building; and that the corporation is convinced that by the expenditure of $10,000 the fire loss can be reduced to an average of one building every three years. Under these conditions, would it pay the corporation to insure with some company? Prove.

Section B. Speculative Trading—Is It Productive? Has It an Economic Function?

Here, as in the case of insurance, the answer is affirmative, though in this case not without qualification. Much which passes for speculation is gambling pure and simple; much more, though legitimate in form, is in spirit nothing different from gambling.

I. Produce Speculative Trading.

(1) The nature of Speculation.

To speculate is to deal in goods with purpose of gaining a profit from price changes in the same market. In this it contrasts with mercantile trading which seeks profit from price differences in different markets forming members of a series.

Illustration: When a dealer on the Chicago wheat market agrees in December to deliver wheat in May, believing that he will be able to buy it at a lower price than the one agreed upon, he is speculating. When the same man buys wheat on the same exchange and sells it to a miller in Rochester, he is engaged in the regular trade. Of course he makes a profit, but that profit is due to the difference of price between the wholesale market and the miller's market.

(2) Speculative Markets, Exchanges, Boards of Trade, Bourses.

The most thoroughgoing forms of speculation are carried on in special markets, called by various names, of which the wheat, cotton, and stock exchanges are the most conspicuous examples. Some of the more notable characteristics of these exchanges are the following:

(a) Trading in common; all dealers in the involved commodity coming together in a complex of buying and selling. (b) Open trading; no privacy as respects other traders, bargains known to all in respect to prices, amounts, etc. (c) Trading through official dealers, brokers. (d) Large scale dealing (e) Major part of trading, speculative. (f) In produce markets, trading in futures usually present.

(3) Chief Functions of Speculation.

(A) To establish proper price. (B) To secure the bearing of the risk burden of ownership in the easiest and cheapest way.

(4) Function A Considered.

(a) As already strongly emphasized, the securing of the proper price, *i. e.*, the price which is demanded by the real conditions of output and need, is a matter of great importance; since it is chiefly through price that the automatic regulation of economic action is effected.

(b) Free speculation, with ample competition on both sides of the market, is the natural way to secure the proper price, the price which ought to prevail in view of the real condition of need and output.

Caution: It must be admitted that, in the present con-

dition of speculative trading when public control is undeveloped and the standards of business morality are very low, true speculation is often mingled with many forms of dishonest manipulation which more or less hinder the establishment of proper prices. Commonly, however, these influences are very short-lived; in the long run the real, underlying forces regulate the market.

(5) Function B Considered.

(a) All ownership of property involves the risk of loss from changes in value. The miller who, in December, buys wheat that will not be marketed as flour till April runs the chance that wheat and flour will both fall in price between the two dates, and so he will have to write off a loss.

(b) Speculative trading permits the transferring of this burden from ordinary owners, *e. g.*, millers, to a special class.

Illustration: A milling company buys 10,000 bu. of wheat on the Chicago exchange, said wheat to be delivered at once for use in the milling business. But the milling company wishes to confine itself strictly to its own business—milling—avoiding all speculation in wheat. It therefore wishes to shut out any chance of loss by a fall in the price of wheat and flour between the purchase of the wheat and the sale of the flour made from it. Accordingly, it sells 10,000 bu. for future delivery; *i.e.*, agrees to deliver 10,000 bu. at a definite price three months from date. This having been done, whatever change takes place in the price of wheat, the milling company will neither gain nor lose; that is, whatever it gains or loses on the original purchase of cash wheat will be exactly offset by an equal loss or gain on the future sale.

Thus, suppose that, when the purchase is made, cash wheat is $1.00 per bu. and three-months futures $1.04. Further suppose that, when the three months have passed, wheat is $1.04. Under these conditions the two transactions will come out as follows:

CASH WHEAT.		FUTURE.	
Original cost.....	$10,000	Cost	$10,400
Storage, insurance, etc.	400		
Total cost.....	$10,400		
Value	10,400	Selling value.....	10,400
Gain or loss.....	$00,000	Gain or loss.....	$00,000

Evidently in this case there is neither gain nor loss from the transactions.

Suppose, now, that the price at the time of future delivery turns out to be $1.00; will the result be different?

CASH WHEAT.		FUTURE.	
Total cost	$10,400	Cost	$10,000
Value	10,000	Selling value	10,400
Loss	$ 400	Gain	$ 400

Still again, suppose price to be 90c at time of future delivery; what result?

CASH WHEAT.		FUTURE.	
Total cost	$10,400	Cost	$ 9,000
Value	9,000	Selling value	10,400
Loss	$ 1,400	Gain	$ 1,400

Finally, suppose price at time of future delivery to be $1.10; what result?

CASH WHEAT.		FUTURE.	
Total cost	$10,400	Cost	$11,000
Value	11,000	Selling value	10,400
Gain	$ 600	Loss	$ 600

Thus on any price the element of risk from price changes is eliminated.

ILLUSTRATIVE PROBLEMS.

A Liverpool miller buys through a Duluth commission house 30,000 bushels of wheat, paying 93 cents a bushel, and at the same time sells 30,000 bushels for May delivery, the price being 95½ cents.

(a) Assuming that 2½ cents covers the cost, (storage, insurance, and interest) of carrying the wheat from the date of purchase till May, show that the miller will lose nothing on the wheat even if by May the price should fall to 70 cents.

(b) Would he gain if the price should rise to $1.10? Prove.

(c) What did the word "carrying" in the second sentence of the problem mean?

II. Speculative Trading in Stocks and Bonds.

Besides the speculation in produce just considered, there is, of course, speculative trading in stocks and bonds, *i. e.*, in the shares of corporations and the notes which they have given to

capitalists in exchange for loans. The markets where such trading is carried on are known as Stock Markets. They are conducted like wheat exchanges, with open trading, abundant competition on both sides, speculative trading, etc. Much that is to be condemned appears in their conduct. But they are after all productive institutions. They play useful, almost indispensable, roles in the economic order. Their most important function is to render more efficient the capital of the country.

(a) They make investment easy.

(b) They make withdrawal from an investment easy, and, in so doing, make capitalists more disposed to invest.

(c) They bring together all classes of investments, make clear their disadvantages, and so appeal to all classes of investors, e. g., those who wish above all security; those who demand a chance for large returns; those who can wait indefinitely for returns of any sort; etc.

(d) They make the properties represented in stocks and bonds perfectly available as a basis for loans. (Banks will readily accept such bonds and stocks as security, seeing that there is a continuous and unlimited market where these properties can be disposed of at almost any moment.)

(e) It is worth noting that the stock market furnishes government with the best available clue to the value of corporate properties when these are needed for the purposes of taxation or social control.

CHAPTER XII.

SOME OF THE MORE IMPORTANT PRINCIPLES GOVERNING MONEY.

Thus far we have done nothing with the complicated and difficult subject of money except to set forth in Chapter VII some simple truths which seem almost too obvious to deserve formal statement. Now, however, we have reached a point where it seems necessary and proper to present the more essential among the real principles of the subject, though even now anything like an exhaustive study of this matter is out of the question.

Section A.—**Principles Governing the Money Standard.**

The student will remember that the monetary standard is that something which fixes the significance or value of the money unit; e. g., in the United States 25.8 grains of gold, nine-tenths fine, fixes, regulates, the value of the dollar. Whatever value 25.8 grains of gold may have at any time, that same value will be had by one dollar. This account of the monetary standard very plainly shows that it is in a very important sense the foundation of the whole system. Further, experience shows that it is by no means easy for a nation to get or keep the standard it wishes to. Again and again nations have unintentionally done something which ousted the standard they had had, and suddenly put them on a new one. It is therefore of much importance to know the natural laws which regulate the standard.

These principles may be grouped in two classes: (1) those which define and determine *standard money;* i. e., the *immediate* standard, the something which directly fixes the value of the unit, and (2) those which define and determine the *ultimate standard;* i. e., the something which finally fixes the value of standard money itself. Thus, gold coin is our standard money, since one dollar—the unit—follows gold coin; but 25.8 grains of gold bullion is our ultimate standard, in that gold coin itself follows this 25.8 grains of gold bullion.

Principle 1. *The standard money of any system must be a*

money which is at par and which has its value fixed independently of its relations to other moneys.

Argument. (1) Standard money must be at par. By definition, standard money immediately fixes the value of the unit. But, obviously, *no money which has a value above or below the unit can fix the value of the unit.* (2) If a particular money has its value fixed by its relation to some other, e. g., a treasury note kept at par with gold by being redeemed in gold, then such money is obviously one of the things *which is determined* rather than the thing *which determines.*

ILLUSTRATIVE PROBLEMS.

1. In the United States in 1870, gold coin was worth $1.21 per dollar, silver coin $1.23 per dollar, and greenbacks $1.00 per dollar. Which, if any, must have been standard money?

2. For several weeks during the panic of 1837 coined money, whether silver or gold, was at a premium of from 2 to 4 per cent, while bank notes were at par. Which, if any, must have been standard money?

3. Add to the first problem that in 1870 national bank notes were worth $1.00 per dollar and were redeemable in greenbacks. Which money, under this condition, must have been standard money?

Principle II. *If, among those moneys in any system which are a valid tender in the payment of debts, differences of exchange value arise, the cheapest of such valid tender moneys establishes itself as the standard money, and the rest go to a premium.*

Illustration.—In the first problem under Principle I we have three moneys all legal tender and each different from the others in value;—the cheapest being worth 21 cents less than the next higher and 23 cents less than the highest. Under these conditions, the cheapest, greenbacks, became the standard money, gold and silver going to premiums of 21 and 23 cents respectively.

Argument. (1) As long as all the moneys in question are valid tenders for debts, debtors will choose the cheapest for this purpose, thus making that money the *standard money for debts.* (2) For the sake of business convenience, the standard money of debts and that of prices are bound to be the same, if possible. (3) This *is* perfectly possible; since, though the standard money of debts is fixed as in (1), that of prices is free to move. (4) Accordingly, the standard money of prices will adjust itself to

that of debts, i. e., to the cheapest of the valid legal tenders, thus making the latter the standard money in general.

Corollary 1. *If two metallic moneys are freely coined and full legal tender at a coinage ratio different from the market ratio, the money coined from the overrated metal will establish itself as the standard money.*

Argument. Suppose that when 1 ounce of gold is on the market worth 16 ounces of silver, the mint treats 1 ounce of gold as worth only 15 ounces of silver, putting into each silver coin less metal than is needed, considering their market ratio. Under these conditions, each silver coin will be worth less than the corresponding gold coin, and so, by Principle II, will make itself standard money. But, when the mint thus treats silver as worth more than it really is, the mint is said to *overrate* silver. Hence, the corollary that the money made from the overrated metal will establish itself as the standard money.

Corollary 2. *If, in the case of a legal tender circulating note which has hitherto been kept redeemable in what has hitherto been standard money, a suspension of payments takes place, such legal tender note will almost certainly establish itself as standard money.*

Argument.—Such a circulating note is a mere promise to pay what has been hitherto standard money. When the issuer suspends payment on his promise, its value inevitably falls off. People expect he will pay some time but are not willing to give as much for a probable future payment as for a certain present one. But, when the note becomes worth less than former standard money, it inevitably displaces such money under the operation of Principle II.

Illustrative Problems.

1. In the United States in 1830, both gold and silver were freely coined at a ratio of 15 to 1, when the market ratio was 15.8 to 1.

(a) Which metal did the mint overrate? Explain carefully.

(b) Which of the two moneys, if any, must have been standard money?

2. In 1830 France had a system similar to ours but its ratio was 15.5 to 1.

Answer the same questions for it, as for the United States under 1.

3. Why did the United States have the greenback as its standard money between 1862 and 1879?

4. In 1717 the British government decreed that a gold guinea should be treated as the equivalent of 21 silver shillings; though, judged by the bullion in them, the guinea was worth 20½ shillings. Which must have become standard money? Explain.

5. In the panic weeks of 1837, bank notes were the standard money. (See Problem 2, page 315.) How do you explain it?

The preceding discussion has concerned the defining and determining of standard money. We now bring out two principles which have to do with defining and determining the *ultimate* standard.

Principle III. *If by any process whatsoever the standard money is kept constantly equal in value to a definite quantity of some outside commodity or group of commodities, such commodity or group of commodities constitutes the ultimate standard of the system.*

Illustration. If a country should issue only paper money, but should at all times redeem such money in gold bullion at the rate of 25.8 grains for each dollar, and, on the other hand, should, when it was desired, pay out one dollar in money for every 25.8 grains of bullion brought in, then the ultimate standard would be 25.8 grains of gold; for 25.8 grains of gold would fix the value of one dollar.

Argument. The principle scarcely seems to require proof. The condition stated in the theorem ties together in value the two things,—standard money and a certain quantity of some outside thing, say a lump of gold weighing 25.8 grains. But, of these two things, one is plainly more stable, fixed, than the other; the value of the lump of gold can change only as all the gold on the general market of the world changes, while the value of the standard money of one out of many countries might change without affecting anything but itself. We must, therefore, think of the metal as fixing the value of the money rather than the reverse.

ILLUSTRATIVE PROBLEMS.

1. A few years ago, the United States remodeled the monetary system of the Philippines, making silver pesos coined only for the government the standard money, but providing that gold exchange on New York should be sold to any person wanting it in exchange for silver pesos at a rate of $1 for two pesos. Such

a system tended to establish what ultimate money standard in the Philippines?

2. Great Britain puts into every sovereign 113 grains of pure gold, coins these sovereigns for every one free of charge, and does not attempt to hinder the melting of coins. Under these conditions what necessarily becomes the ultimate money standard of Great Britain? Explain fully.

3. What must have been the ultimate standard of the United States in 1830? See Problem 1, page 316.

4. What must have been the ultimate standard of France at the same date? See Problem 2, same page.

Principle IV. *If the standard money is not kept constantly equal in value to a fixed quantity of some commodity or group of commodities outside itself, but varies in value independently of the variations of any other object, then such standard money is itself the ultimate standard of the system.*

Illustration. Prior to 1893 British India had as its ultimate money standard 180 grains of silver; i. e., the unit coin, a rupee, contained 180 grains of silver and was freely coined, thus making the metal itself the ultimate determinant of the value of the rupee. But, in the year named, the government stopped the free coinage of silver with the result that coins rose in value as compared with the metal in them, fluctuating from 32 cents down towards, but never to, their bullion value, 22 cents. Thus the silver rupee had nothing behind it to fix its value—it moved up and down independently of anything else. Accordingly, the silver rupee fixed the value of the unit (the rupee) not only immediately *but also ultimately;* and hence was itself the ultimate standard. (This illustration would seem to furnish sufficient proof of the principle.)

ILLUSTRATIVE PROBLEMS.

1. What was the ultimate standard of the United States between 1862 and 1879? Explain.

2. What was the ultimate standard of the United States during the panic weeks of 1837? See Problem 2, page 315.

3. Suppose, that after 1893 the government of British India had so managed things as to keep gold exchange on London constantly at 20 rupees for 1 sovereign (123.27 grains of gold). What would then have been practically the ultimate standard of India?

Section B. **Circulation of Money.**

The second group of monetary principles which we must study concern the circulation of money. Will a particular money circulate at all? What kinds of money have greater tenacity in circulation? To what part of the circulation is a particular kind of money likely to gravitate? and so on. These and other related questions are of importance because of the fact that in the course of events governments have occasion to arrange matters so as to keep a particular money in circulation; or in another case so as to drive a particular money out of circulation; or in still another so as to keep a particular kind of money down to a small stock, though not driving it out altogether; or again, so as to segregate a particular kind of money in some special part of the system; and so on. The natural laws regulating these matters are fairly numerous; but here we can bring forward only two or three of the most important.

Principle V. *Broadly speaking, a money's tenacity in circulation varies directly as* its capacity to do the various kinds of money work and the degree to which that capacity is assured.*

Illustrations. A money which is receivable by government in payment of taxes has more tenacity in circulation than a similar money which is not so receivable. A money which is a legal tender in most relations circulates more surely than one which is not. Bank notes which can be used as bank reserves by state banks have more tenacity in circulation than notes which can not be so used.

Principle VI. *In the case of credit money, tenacity in circulation varies directly as the difficulty of returning such money to the issuer.*

Illustration. If, in order to get a bank note redeemed, the holder is obliged to send it to some city hundreds of miles distant, paying the cost himself, he is likely to give up the idea altogether and content himself with passing the note on in buying goods or paying debts. Thus, such notes tend to continue in circulation, rather than going out by return to the issuer. Reversing the conditions would, of course, reverse the tendency.

Argument. The principle probably needs no other argument

*Remember that in Economics "to vary directly as" means only to vary in the same direction, **not proportionally**; and to "very inversely as" means only to vary in the opposite direction, *not proportionally*.

than to make clear that returning to the issuer does actually put a credit money out of circulation; since, assuming this to be true, it is obvious that any obstacle to such returning would strengthen the hold of said money on the circulation, while the removal of that obstacle would weaken its hold. There are various ways of showing that a circulating note is retired by return to the issuer; but for our own present needs the simplest will answer. When a note has been returned to the issuer, the situation is precisely what it was before said note had been issued at all. But, of course, a note can not be said to be in circulation before it has been issued at all. Hence it can not be said to be in circulation after return to the issuer.

Principle VII. (*Gresham's Law.*) *Comparing (1) moneys which have more value in circulation than in any other disposition, (2) moneys which have the same value in both connections, and (3) moneys which have less value as money, the first have the greatest tenacity in circulation, the third have the least, and the second something between.*

Illustrations. (a) If there are circulating side by side two gold eagles one of which is of full weight while the other is a half grain short, the latter is more likely to remain in circulation than the former. (b) Our silver dollar which circulates at par though much short in weight, and therefore is more valuable as money than as bullion, can hardly be driven out of circulation, while full-weight gold coin is constantly being withdrawn. (c) If gold and silver coins which are full legal tender and freely coined are circulating side by side, and, on account of changes in their market ratio, the silver goes to a premium of 2 per cent, the gold will circulate as freely as ever, but the silver will almost completely disappear.

The argument for the principle is simple. If a money is worth less for outside purposes than as money, no one will be tempted to withdraw it. If it is worth more for outside purposes, no one who knows that fact will be willing to pass it on as money. If it is worth the same in both relations, people will make either use of it according as circumstances dictate.

Principle VIII. *In the distribution of the monetary stock of a country, money of smaller denominations naturally gravitates to the Circulation Proper, i.e., the part of the circulation which is being used directly as a medium of exchange, money*

of larger denominations, to the Reserves, i.e., the funds kept by banks and other institutions to meet credit obligations.

Illustration. If we allow some particular kind of money to be issued only in large denominations, say $25 and upward, we thereby almost completely shut such money out of the circulation proper. Again, if we allow another money to be issued only in $1, $2, and $5 denominations, we almost completely exclude such money from the reserves, provided we do not issue much more than can be utilized in the circulation proper.

Argument. This principle has been proved in experience, but is most easily established by reference to the conditions of the case. The circulation proper, the part of the money stock actively engaged in exchanging goods, will certainly draw to itself that kind of money which is fitted for its special work. But, obviously, there will in ordinary trade be comparatively little need for money of large denominations, especially in a community which makes much use of checks, and great need for money of small and middle denominations, to effect purchases, make change, etc.

Illustrative Problems.

1. In 1849, when the United States had free coinage of both gold and silver, a change in the relative values of the two metals sent silver coin to a premium, i.e., two silver half-dollars were worth $1.02. What naturally happened to silver coin?

2. During the Civil War, the government of the United States thought best to borrow money by paying soldiers, contractors, *et al.*, with treasury notes. Yet it was desirous that these notes should not be added to the circulating medium, but should soon get into the hands of people who would lay them one side and hold them till they were due,—in other words, treat them as bonds. The Treasury finally hit on a pretty good plan to accomplish this. What was it?

3. In 1862, when gold payment on treasury notes had already been suspended, the United States began the issue of legal tender notes. In consequence gold went to a premium, soon being worth $1.15 per dollar. What naturally happened to it?

4. Experts consider it very desirable that the bank note circulation should be elastic,—should expand readily when the need for money increases and contract promptly when the need diminishes. Of these two phases of elasticity, the second is in a sense the more important, in that it really provides for the first. In order to secure this power of prompt contraction, various provisions have been enacted or proposed; (a) establish a

good many redemption agencies at convenient points throughout the country; (b) prohibit any bank from paying out in regular business the notes of another bank except in the city or district where the issuing bank is located; (c) prohibit the use of bank notes as reserves by banks outside the system; (d) take away the right of legal tender to government; and so on.

Explain in each case why the provision set forth would naturally contribute to the contractility of the note circulation.

5. In 1894, on account of excessive issue of silver and paper money, as also on account of the marked decline in business activity, the United States had a great excess of circulating medium. This fact (combined, doubtless, with other causes) led to a considerable contraction by export to other countries. What kind of money must have gone?

6. In 1886, Congress provided by law for the issue of silver certificates of $1, $2, and $5 denominations, and in 1900 decreed that 90 per cent of the total amount of such certificates should be in denominations from $10 down. Try to find out what they hoped to accomplish by this legislation.

Section C. **Movements and Distribution of Money.**

In spite of the fact that money payments between different communities are largely effected by a cancellation of reciprocal credits, there necessarily take place many transfers of money itself. These money movements are often of importance, both because at times they tend to modify in undesirable ways the distribution of the monetary stock among different communities and because at times they indicate more or less diseased conditions of the industrial or monetary system as a whole. We here set forth a few of the most important principles regulating these movements.

Principle IX. *The dealings of one country (community) with other countries in respect to goods and capital do not in themselves naturally lead to net movements of money either to or from said country; but, if circumstances are such as to maintain a balance of claims for or against said country for a period of several weeks, a net movement of money to or from that country is probable.*

Argument. A. The first clause of the theorem needs to be established under each of two hypotheses; (1) when international dealings are affected through credit mostly, and (2) when such dealings are effected through cash payments. Under hypothesis (1), the truth of the theorem is evident. The principle that trade is in its nature reciprocal, which we had early in our

course, tells us that we shall sell as well as buy,—that claims for us will naturally match claims against us. Consequently, trade as such *will not naturally lead to any movement* of money. Under hypothesis (2), money movements, by the terms of that hypothesis, take place; but these are not *net* movements—movements which show a balance one way or the other. The foreigner does not naturally take from us more money than he brings to us; because his only use for money is to buy things. Money is a mere go-between; the real thing sellers want is the good they later buy with money. *Money, therefore, naturally comes back as surely as it goes away.*

B. The second part of the theorem is no more troublesome than the first. If a country is for several weeks selling much more than it buys, so that there is a large balance of claims in its favor, its bankers or exchange dealers will be unwilling to wait for their pay till the tide turns and so will probably order money itself sent to them.

Corollary 1. *Money tends to flow to any country (community) where the rate of discount is exceptionally high, and vice versa.*

Argument. Such a condition of things tends to cause a flow of capital to said country, hence tends to establish a balance of claims *in favor of* that country, and so tends to bring into operation Principle IX.

Corollary 2. *Money tends to flow from a country where the stock is abnormally large as indicated by the state of the central reserves.*

Argument. This corollary follows from its predecessor. An excessive money stock causes excessively large bank reserves, which cause a fall in the rate of discount, which brings Corollary 1 into operation. In extreme cases, an excess of money raises prices, and by this causes an inflow of imports, then a balance against the country, and finally an outflow of money.

Corollary 3. *There tends to be a continuous net flow of money from a country which is a producer of standard money metal.*

Argument. The natural and easy way to market standard money metal is to take it, directly or indirectly, to the mint, have it turned into money, and sell it as money, i. e., spend it for goods. But this means that the money stock of a gold producing country is being constantly augmented, and is constantly

becoming excessive. This brings into operation Corollary 2.

Corollary 4. *Money tends to flow from any country which has experienced a marked decline in industrial activity.*

Argument. The condition named makes the money stock excessive,—since there is less money work to be done,—and so brings into operation Corollary 2.

Corollary 5. *If a full weight metallic money comes to command a premium, it tends to be exported from the country.*

Argument. When such a money goes to a premium, it naturally ceases to circulate—to be used as money, Principle VII above. But, ceasing to be used as money, it is thrown on the metal market, making the supply excessive and hence making its value at home low as compared with its value in other countries. That is, the premium it bears at home is less than its value abroad would seem to justify. It is, therefore, exported.

Principle X. *Every net movement of money tends to be stopped, or even reversed, by the automatic reversal of that condition which is necessary to bring it about, or by the action of conditions which its own continuance sets up.*

Argument. (Reading XVI.) A. A money movement—e. g., an outflow—tends to be stopped, even reversed, by the automatic reversal of the condition which immediately brings it about. The condition here alluded to is a high rate of exchange. Without such a high rate, money will not normally go. But a high rate of exchange is, so to speak, self-reversing, in that it makes the exporting of goods unusually profitable, hence stimulates competition among exporters, so leads them to shade prices, consequently stimulates foreign buying, thus makes exchange abundant, and so *lowers* the rate.

B. A money outflow, if long continued, sets up conditions which tend to stop or reverse the movement. Such an outflow makes banking reserves in the commercial centers (New York, London) scanty, hence raises the rate of *discount*, therefore checks buying of securities, consequently lowers their prices, hence stimulates foreign buying, thus makes exchange abundant, therefore *lowers the rate of exchange*, and so removes the condition which is necessary to further outflow.

Corollary. *There is never any danger that an outflow of*

money from a particular country will go on till that country is denuded of its monetary stock.

Principle XI. *Generally speaking, the monetary stock of a country, or group of countries having the same standard, tends to distribute itself according to relative need.*

Argument. This principle ought perhaps to be given as a corollary under Principle IX. But its importance justifies its presentation as a separate theorem. The reasoning on which it is based is simple. If the monetary stock of a particular country is relatively excessive, bank reserves expand, the prices of securities (and ultimately of goods) rise, foreigners sell freely on our markets, our foreign debt expands, exchange rises, and money goes, thus reducing the plethora. On the other hand, a relatively deficient stock of money makes bank reserves low, the rate of discount (not exchange) rises, home buying falls off, prices fall, foreign buying is stimulated, exchange becomes abundant, the rate of exchange falls, and money flows in.

The above argument treats the matter as things work between highly developed commercial nations in the ordinary course of things. As between the small communities where standard money metal (gold) is produced, e. g., South Africa, the Klondike, etc., and the rest of the world, the working of things is, if anything, more simple. The extraordinary abundance of money (for gold here at once becomes money even in its raw form) and the great scarcity of all other goods makes prices excessively high, goods flow in at an extraordinary rate, the community has constantly a large balance of indebtedness against it, and money must constantly be sent out.

Principle XII. *While, in general, the proper distribution of the world's monetary stock among the different nations can safely be left to the working of automatic forces, circumstances may arise under which it is desirable consciously to control particular movements of money, in order to maintain the stability of the system of credit.*

Argument. The student is already familiar with the fact that our exchanging medium consists in large part of credit money, promises to pay real money, and, in still larger part, of mere credit, bank credit, deposit currency. Now, it is plain that, under such an order of things, *the foundation of real money* on which the whole system rests, is vastly more important than any

other constituent of the circulating medium; and this is particularly true of that portion of the stock of real money which we call the *ultimate reserve,* the reserve kept by a great central bank or, as in our case, by the government to redeem credit money. If this reserve is exhausted, the standard goes, the system falls to the ground. Thus, every export of standard money threatens to take away the very foundation of the system. It is, therefore, perfectly natural that the banking community should view with apprehension an excessive outflow of such standard money. It is also perfectly natural that, if such an excessive outflow continues, they should call for some action on the part of government or of the central bank to check the outflow. As a matter of fact, the great banks of Europe have developed several more or less efficient devices, policies, having this end in view. Of these the most important consists in *raising the rate of discount* and thus bringing into operation Corollary 1 of Principle IX.

ILLUSTRATIVE PROBLEMS.

1. "When I came to Marblehead they had their houses built by country workmen, and their clothes made out of town, and supplied themselves with beef and pork from Boston, *which drained the town of its money.*"—Barnard's Autobiography. Criticise the part in italics.

2. During the years 1853 to 1864, inclusive, when France had a system of bimetallism at a coinage ratio of 15.5 to 1, while the market ratio was about 15.3 to 1, the French circulation absorbed about $680,000,000 of gold, and ejected about $345,000,000 of silver. Explain these facts, using one of the corollaries of Principle IX.

3. Between America and Europe there is usually a net movement of money toward Europe during the second quarter of the year, toward America near the end of the third, and early in the fourth, quarter." Explain why you would expect this to be true.

4. "A country has never been despoiled of its money by the working of its international trade."—Gide's Political Economy, p. 120. Why does he feel so sure about this?

5. A New York wheat broker sells 50,000 bushels of wheat to a Liverpool miller, and sells against it a sight bill of exchange for the proceeds, £8735 16s. The wheat cost him 84 cents per bushel.

(a) With exchange on London at $4.88, what would his profits be?

(b) What would they be with exchange at $4.84?

(c) What has this got to do with money movements? Explain carefully.

6. "Between New York city, as the banking center of the United States, and the country at large, there is usually a great money movement outward from New York during the summer and early fall, and an inward movement toward New York during the late fall or early winter." Explain why you would expect this to be true.

7. Argument for a subsidy to the American merchant marine: "We pay 110 million dollars per annum for the carrying of products between this and foreign countries. Think of it. One hundred and ten million dollars in gold coin has gone out of the commerce of this country into the commerce of other countries. Can New York stand this?"—James G. Blaine, 1881. (a) Did our paying $110,000,000 for the carrying of products mean that $110,000,000 in gold coin went out of this country each year? (b) If $110,000,000 in gold coin were to go each year for this purpose, would we be any poorer because of it? (c) Would it be any better if we could meet the obligation by sending out $110,000,000 worth of cotton or wheat rather than so much gold? (d) Could we, as a matter of fact, send out $110,000,00 in gold each year for this or any other purpose? Why?

Section D. **The Value of Money.**

Thus far in our discussion of value and price, it has been assumed that money itself, the thing in which the values of most goods are expressed, is constant in value. This way of conceiving the matter has been encouraged by our emphasis on the idea that the money unit is tied to a certain definite quantity of substance, say 25.8 grains of gold, just as a gallon measure is tied to 8.33 pounds of water. But we must now call the student's attention to the fact that such a way of looking at the matter is more or less inaccurate. The cases of the money standard and the liquid measure standard are not precisely analogous. In using 8.33 pounds of water as a standard of liquid measure, we need have no anxiety that the bulk of the water itself will change, and so cause that of our unit to change, since *we can make those conditions which can modify the bulk of water—temperature and atmospheric pressure—absolutely the same in all cases.* But we can not parallel such an operation with gold and its value. We can not say that we will have as our money standard the value of 25.8 grains of gold *under just the same essential conditions as prevailed when it was finally adopted in 1873;* for we can never reproduce those conditions. All we can do, and all we try to do, is to keep the value of one dollar the same at any one time as the value of 25.8 grains of gold is at

that same time. We know that in so doing we are tieing the dollar to something which itself changes. But we are doing what seems the best thing possible under all the conditions of the case. Gold probably changes as little as any single commodity. Further, as being the standard of all important countries, it is far better than any other. But it no doubt changes in value, and so, of course, our money changes in value.

We have just said that gold, and so money, undoubtedly changes in value. But it is not as easy to establish the fact of change or to measure its amount as the student might imagine. Gold being the standard of all great commercial nations, there is practically no market where its value is expressed in terms of something besides itself. There is, therefore, practically no place where its *apparent* value, its money price, changes at all. In the United States it is always worth $18.67 per ounce; in Great Britain, £3 17s 10½d per ounce; and so on. Our only method of ascertaining changes in the value of moneys is to study *the movements of the prices of other things.* If gold, and so money, should all at once greatly rise in value, its own price would remain constant, but that of every other thing would fall. On the other hand, a sudden fall in the value of gold would show in a rise of the prices of all other things. It would seem, therefore, that we need only to ascertain the changes in the general level of prices to know the changes in the value of money; and, in large measure, this is what we try to do.

But here again we find trouble. Changes in the value of money would surely express themselves in opposite changes in the level of prices. But the level of prices may be changed by other causes; e. g., sudden collapse of business demand, great fall in cost of production. In other words, a change in the general price level may really be, not a change in the value of money, but a change in the value of goods. Or, if this method of expressing the matter is objectionable, we may say that some changes in the general level of prices have their origin in causes affecting goods rather than money, and, if called changes in the value of money at all, these may be distinguished as *relative changes;* while changes in the price level due to causes acting on money itself would be called *absolute changes.*

The preceding discussion has brought out the nature of changes in the value of money, let us now remark on the most important principles governing these changes.

Principle XIII. *If there takes place any change in conditions outside the monetary system tending to cause a change in the supply of, or the demand for, goods in general, or to cause a widespread change in the cost of producing goods, said change in conditions will also tend to cause the corresponding change in the general price level; but such a change will be merely a relative, not an absolute, change in the value of money.*

Illustrations. A. When, after a period of industrial stagnation, business begins to pick up,—people begin to have faith in the future,—there naturally takes place a considerable expansion of demand for goods of all sorts, and in consequence a measurable rise in prices, beginning among a few commodities but gradually extending until it covers, if not the whole field, at least a large portion of it. As the boom advances, this movement becomes more and more pronounced. Every one believes prices will go higher, and so is eager to buy, that he may have something to sell at these higher prices. But of course his eagerness to buy means more demand and so more advance in prices. This self-propagating movement continues until the expansion has passed all reasonable bounds, when suddenly some accident precipitates a general collapse of the boom,—pricks the speculative bubble. At once all are eager to sell, no one wanting to buy; and this sudden expansion of supply and contraction of demand causes a falling off of prices, more rapid probably than the rise has been.

B. If throughout a period of considerable length, say between 1850 and 1890, there occurs a widespread improvement in technical methods so that the costs of producing large numbers of commodities are greatly reduced, there naturally follows a decline in the prices of these commodities, so marked as to lower considerably the average, or general, price level. But such a lowering of the general price level could not properly be conceived as a real or absolute advance in money. It has taken place, not because something has happened to money, but because something has happened to goods. To employ a common method of expression, it is not a change in the value of money at all, but rather a change in the value of goods.

These illustrations of the Principle would seem to furnish all the argument it needs. In fact, the theorem is formally presented chiefly to guard the student against confusing price changes of the kind here considered with those more important

ones which constitute real or absolute changes in the value of money.

Principle XIV. *Whenever the conditions are such that it is possible for the general public to have substantially conclusive evidence that a change in the value of the standard, as measured in at least one important commodity, has taken place, there will almost certainly follow, more or less rapidly, a direct readjustment of general prices to the changed standard.*

Illustration. A. Before 1893, India had a silver standard; at the same time the value of silver was constantly fluctuating in the London market; and these fluctuations were manifested in India by changes in the rate of exchange on London. Under these conditions frequent readjustments in the prices of goods—particularly the prices of imported goods—took place in response to the changes which occurred in the value of silver.

B. During the Civil War in the United States, the standard money—greenbacks—greatly fluctuated in value, as measured in gold, which it had temporarily displaced. Its buying power as money also fluctuated in a fashion roughly corresponding to its fluctuations as measured in gold,—a result which seems to have been affected by a more or less conscious readjustment of prices to changes in the value of standard money (greenbacks) as measured in gold.

This principle, like the one preceding, hardly seems to need further proof than the illustrations furnish. We could probably be sure that business men of experience, alert and shewd, would refuse to sell goods at the old prices for money which had fallen twenty to thirty per cent in what they were accustomed to consider the world standard.

Principle XV. *During a period marked by much uncertainty, either political or commercial, the value of irredeemable paper money is chiefly determined by public confidence in its ultimate redemption, varying directly as said public confidence.*

Argument. (1.) The value of said irredeemable paper, as measured in the standard money in which credit money has hitherto been redeemed, is in a time of much uncertainty chiefly dependent on the likelihood that redemption will be resumed. This seems almost self-evident. Great uncertainty of any sort, fears of defeat in war, anxiety lest government should repudiate in greater or less degree its note obligations,—these naturally

overbalance all other forces, making a note worth 60 cents today, 43 tomorrow, 55 the next, and so on.

(2.) But, if the value of irredeemable paper, as measured in the old standard, fluctuates with public confidence in its ultimate redemption, and if, as declared in Principle XIV, the value of such paper, as money used to buy goods, is roughly readjusted to its value as measured in the old standard, then the value of such paper varies with public confidence in its ultimate redemption.

Principle XVI. *If there takes place any change in conditions directly affecting money itself which tends to cause a change in the demand for goods in general, said change in conditions will also tend to cause a corresponding change in the general price level, and such change will constitute an absolute change in the value of money.*

Illustration. Suppose that in a community which contains only a few thousand inhabitants there occurs a great gold discovery, and in a few months bullion to the value of hundreds of thousands of dollars is brought out. As such bullion can be almost instantly turned into money or its equivalent bank credit, there will take place at once a great expansion in the money demand for all sorts of goods, while no corresponding increase in their output takes place. (In fact, the latter rather diminishes because people desert other industries to hunt for gold.) In consequence, a rapid rise in general prices takes place. And this rise in prices is a real or absolute fall in the value of money; since it is obviously the increase of money or its cheapening (in cost) or both which cause the change.

The above illustration contains the gist of the argument for the Principle.

Corollary 1. *The value of money tends to vary inversely as the total quantity of money in general in the country or in the whole group of countries having the same standard.*

Argument. If the quantity of money increases, the demand for goods naturally increases, and so the level of prices tends to rise, i. e., the value of money tends to fall. A similar course of reasoning would show that a diminution in the volume of money tends to increase its value.

Caution. It is probable that under modern conditions few actual changes in the value of money are traceable to changes

in the total quantity, save in countries which have a fiat money for the standard, or in small districts where standard money metals are being mined.

The reason for this is that there is a very high degree of elasticity in the monetary system of almost any advanced country, and so changes in volume whether causing excess or deficiency, are easily corrected. This great elasticity is due to various conditions. (1) As most nations have the same standard —gold—a deficiency in one is easily made good by imports from elsewhere, while an excess is easily relieved by export. (2) Most advanced commercial peoples make an extensive use of *credit* media of exchange, and these are in the highest degree elastic, expanding or contracting rather as the needs of business expand or contract than as the volume of money changes. (3) In most cases one of the moneys (the bank note) is highly elastic.

Corollary 2. *The value of money tends to vary inversely as the quantity of standard money available, and hence to vary inversely as the output of metal, directly as the cost, directly as the quantity used in the arts, and so on.*

Argument. A. In so far as changes in the quantity of standard money affect the total quantity of money, they obviously tend to bring into operation Corollary 1.

B. But changes in the quantity of standard money have other more potent methods of influencing the value of money. This kind of money, as we have remarked more than once, occupies a very fundamental place in the system. A deficiency or excess of such money is more promptly felt than a deficiency or excess of any other kind. In the chief commercial center of the country there must be kept one or more great reserves of standard money to secure the maintenance of the system as a whole. In most countries this reserve of standard money is identical with the ultimate banking reserve; so that excess or deficiency in standard money means excess or deficiency in the reserve which, as we saw under Principle X, plays such a part in the outflow or inflow of money. Under such a system, the addition of a few millions of gold, constituting a very small fraction of the total money stock of the country, might establish that superfluity in the central reserves which causes a low rate of discount and so a rise in prices, while a similar subtraction of only a few millions would bring about that deficiency which causes a rise in the rate of discount and so a fall in prices. In the case of the United States, changes in the amount of standard money are not so potent, since we use for the central reserve not only

gold but also legal tender treasury notes.* Even so, however, changes in the quantity of standard money, as being one of the *only two moneys* which do make up those reserves, affects their volume very decidedly, as bank notes, silver, etc., usually can not; and, therefore, such changes in the quantity of standard money have much more power to influence the general level of prices, i. e., the value of money.

Caution. While changes in the quantity of standard money, and so of standard metal, are doubtless more potent to alter the value of money than are changes in the quantity of money in general; still, theory and experience alike indicate that changes in the value of money certainly traceable to this cause are unexpectedly small in amount. This certainly proved true of the additions to the stock of gold due to the famous Californian and Australian discoveries. Whether a similar statement will prove true of the recent extraordinary expansion of gold production, no one can as yet tell us. Money has probably somewhat fallen in value from this cause; but the fall has probably been smaller than the public commonly suppose, and may in the end prove insignificant.

Corollary 3. *The value of money in any country, or group of countries having the same stardard, tends to vary directly as the need for it, i. e., as the money work to be done,—especially as the need for standard money.*

Illustration. When, in a country making large use of credit-exchange, there takes place a collapse of credit such as marks a panic, so that credit media of exchange will no longer do the work—money only will be accepted,—almost certainly there will occur a marked fall in general prices, i.e., a rise in the value of money.

Argument. The student can easily construct the argument for this corollary for himself. It is almost identical with what is given under Corollaries 1 and 2.

MISCELLANEOUS PROBLEMS UNDER MONEY.

1. "I can't understand what people mean when they say that money has risen in value since 1873. Money is by common consent the measure of the values of all other things; and so *its own value must be fixed,—can not rise or fall.*"—From a gold advocate in 1896. Explain his mistake.

2. Why would changes in the total quantity of money in the United States between 1862 and 1879 naturally have had more

*We *might* use silver dollars also, since they are a full legal tender; but we do not in fact do so to any considerable extent.

influence on its value than equal changes would have had between 1850 and 1860?

3. Extract from a speech in the campaign of 1896: "If any man in this community would offer to buy all the eggs at 25 cents a dozen, and was able to make good the offer, nobody would sell eggs for less, no matter what the cost of production, whether one cent or five cents a dozen. So with silver. Free coinage *would establish the market price of silver at $1.29,* and nobody would sell for a cent less."

There is doubtless a sense in which the italicized claim is true; but this is not the sense which was intended. The speaker meant that silver would rise to $1.29, as measured in the present dollar; so that there would be no repudiation of debts in adopting the free coinage of silver.

(a) Show that such a claim is not established by this argument.

(b) In what sense is the statement true?

4. "We have altogether too little money in the country ($2,600,000) not enough to pay the railway debt ($6,000,000), or even the debts of banks to depositors, let alone the business debts." Explain fallacy.

5. A few years ago Mexico had a silver standard. If at that time silver had risen in value, would the Mexican dollar have risen in value? Would it have risen in price? Would the price of silver bullion have risen?

6. In 1856 the monetary system of France was bimetallism at the ratio of 15.5 to 1. The market ratio at that date was about 15.3 to 1. What must have been the monetary standard? Prove.

7. In the panic of 1893, when in America money was so scarce that business men and bankers had to resort to all sorts of substitutes, such as due bills, New York drafts, deposit certificates, etc., an eminent American economist said in substance: "What do you think now? Was I not right in contending that the stock of money is altogether insufficient?" Did the facts establish his contention?

8. Argument against Bryan in the campaign of 1896: "I can see how free coinage is going to increase the profits of the mine owners *by doubling the value of silver;* but I do not see how it is going to help the rest of us." Explain the fallacy in the words italicized.

9. During the sixth decade of the XIX Century when France had bimetallism at a ratio of 15.5 to 1, though the market ratio was about 15.3 to 1, dealers to their surprise every now and then received silver five-franc pieces in payment for goods. Why should this have surprised them?

10. "Unless the government redeems all worn coins at their

face value, a coinage in active use always shows a strong tendency to deterioration." Explain why this is bound to be true.

11. "I object to our buying outside anything which we can produce at home; for this means just so much money lost from our coin circulation." Show that this is unsound.

12. About 1850, when the United States had bimetallism at a ratio of 16 to 1, there took place a considerable fall in the silver price of gold, so that the silver in an American silver dollar was worth 2 to 3 cents more than the gold in a gold dollar. In consequence, silver coins generally went out of circulation, only the much worn ones remaining. Explain (a) why most went out and (b) why some stayed.

13. What is meant by saying that our mint ratio between gold and silver was 1 to 15.98?

14. "New York, Dec. 11, 1903. The banks gained from the interior this week $2,042,906."—Newspaper. Was this normal?

15. "London, Oct. 3. One hundred and fifty thousand pounds sterling gold will be shipped tomorrow to New York." Was this normal?

CHAPTER XIII.

THE PRESENT SYSTEM OF DISTRIBUTION.

It is a fact of everyday observation that the economic incomes enjoyed each year by different persons or families are very unequal in amount. It is an even more conspicuous fact that the totals of accumulated wealth owned by different persons or families are very unequal in amount. This inequality of incomes and possessions would, like any other notable phenomenon, demand scientific explanation, even if no great human interest were involved. But, since such inequality is one of the most trying facts of actual life, its study and discussion inevitably becomes of quite exceptional interest and importance. Accordingly, the economist has in every generation, and in ours most of all, spent much time trying to answer questions like these: What are the incomes received by different classes of persons? Under what general and specific principles are these incomes at present determined? Is the general result entirely reasonable or just? If not, what is to be said for and against the various projects brought forward to improve matters? Such questions as these suggest pretty fully the scope of that division of economics commonly known as Distribution. In the present chapter our task will be to study the facts of the existing system of distribution and the principles regulating them.

Section A—**The Principal Sources or Kinds of Incomes.**

Incomes naturally fall into two main classes, (a) Economic, and (b) Non-economic. Under the former are included all which arise directly out of economic activities; e. g., wages from the sale of labor, or rent from selling the use of land. Non-economic incomes are all those which arise *outside* economic activities; e. g., from gift or theft. In some cases, the same income can be with more or less reason assigned to either class. Thus, many of the great incomes obtained in America from the exploitation of natural resources, such as lumber, copper, oil, etc., which may be classified under one of the regular economic

shares—profits,—may also be conceived as in a sense non-economic in that they often have their origin in the foolish or corrupt munificence of government. It is hardly necessary to say that our study of incomes will be largely concerned with those which can properly be called economic.

The economic incomes naturally fall into two classes: *personal* incomes, i. e., incomes received in exchange for personal services and *property* incomes, i. e., incomes received in exchange for the services given by some property belonging to the receiver of the income. Practically all important cases of personal income may be brought under the category of wages, though in ordinary speech remuneration for the higher forms of personal service is usually called salary. Property income gives three cases: rent, interest and profits.

Rent, as commonly understood by economists and as used in the present course, does not correspond to the popular usage, which makes it to mean the *hire* paid for the use during some agreed upon period of *any* material object, e. g., a house, a piano, a boat, etc. Rather, we confine it to hire paid for the use of *land*. Even here further qualification is needed. In the strictest sense, rent is paid for the use of *non-producible* or anyhow *indestructible* elements in land. No doubt, as we have often had occasion to say, one sometimes has difficulty in drawing lines with precision. Whether a particular element in a particular income ought to be included under rent or under some other category can not always be determined. But practically no great difficulty is experienced save in the semi-metaphysical controversies of economists. When governments set about taxing true rents while letting the hire of capital goods such as houses, barns, fences, etc., go free, they easily reach a result accepted by the public as substantially fair.

Interest, we remember, is the capitalist's remuneration for *waiting*. Its purest form is seen in loans where *risks* are practically eliminated. Profits, on the other hand, are the remuneration paid specially for *taking the risks*, or better, taking the *responsibilities of ownership*.*

Illustrative Problems.

1. In later years many city governments have introduced the plan of putting specially heavy taxes on economic rent or,

*For a fuller account of the nature of profits see Section H.

what amounts to the same thing, on the value of sites.

(a) Do you see any way of distinguishing the value of the site from that of the building?

(b) Show that taxing the value of the site would naturally amount to taxing the economic rent.

2. Mr. Crane puts $3000 into a grocery business and works himself in the store from morning till night. His net return from the business is $1500.

Make an imaginary distribution of this income into the several economic shares which are probably involved.

3. My friend has eight houses and lots in Ann Arbor which he rents, getting for each, let us say, $360 a year. Try to break up this sum into the different elements which probably enter into it.

4. At a certain inland resort rowboats are let at $1.50 per day. Enumerate the different elements entering into this sum.

5. The following are among the chief manifestations of the Interest phenomenon. Explain and illustrate each of the three cases under (b).

(a) In loan contracts. People borrowing money return an equal sum and also something additional,—a bonus or premium.

(b) In the determination of prices.

(1) Producible goods sell for prices *higher* than their cost in other goods and labor would seem to warrant.

(2) The annual uses of producible goods sell for prices *higher* than the prices of the goods themselves would seem to warrant.

(3) Non-producible goods sell for prices *lower* than the sums of the prices of their uses would seem to warrant.

Section B. **The Influence of Legal Arrangements on Distribution.**

It has commonly been admitted that legal conditions play a very large part in determining the distribution of incomes and possessions. The point is so evident as to need little elaboration. For example, the law commonly excludes force and fraud, and it is manifest that distribution depends not a little on the extent to which these restrictions on conduct are enforced. So, the law determines how far men shall be free to give away or bequeath property, and so determines in no small measure the size of incomes having such origin. Again the law decides whether private individuals shall have a property right in other men, in land, in capital goods, and so on; and the decision reached in each of these cases has a great influence on distribution. If private persons were prohibited from acquiring and

holding the title to land, rent, as a share enjoyed by a limited number of private persons, could hardly exist. Similarly, interest and profits, as private shares, depend on the right of private property in capital, also on the right of business initiative, on the right to exchange present goods for future goods plus a bonus, and so on. Still again, the law can greatly modify distribution through its use of the taxing power. The burden of supporting the state may all be thrown on the wealthy class, or on a limited section of that class, e.g., the landowners. Further, the state, while locating the burden of its support on a special class, may greatly expand its activities for the economic benefit of some other class or classes. thus in effect *redistributing* incomes.

ILLUSTRATIVE PROBLEMS.

1. By substituting public for private ownership of land, the state would do away with rent as a private income.
(a) Would it do away with rent altogether?
(b) Would it make the land any freer than it is today, i.e., would it make the process of getting hold of a piece of land from which to make a living easier or cheaper for the poor man?

2. Socialism would try to get rid of interest as an individual share. Could it probably annihilate interest altogether?

3. If the laboring classes were in a condition of true slavery, would there be wages in the strict sense of the word? In any sense of the word?

4. "After the tax (land tax) has been in froce for a number of years, * * * it ceases to impose any burden whatever upon the present landowners. Hence a government which fails to raise the rate of the land tax every few years discriminates in favor of landowners."
Give the argument by which the above contention is supported.

5. "The use of indirect taxes to raise the public revenue exaggerates the inequalities of a system in which inequalities are already far too great; for such taxes rest with much greater weight on the poor than on the rich." Explain the argument for this contention.

Section C. **General Character of the Process whereby the Regular Economic Shares are Determined.**

Generally speaking, the process whereby the regular economic incomes—wages, rent, interest, and profits—are determined is the *price-determining* process. In other words, distribution may quite properly be conceived as only a subdivision of exchange,

or anyhow as regulated by the laws of exchange. The correctness of this account of the matter is easily established by running over the several types of economic income. Thus (a) it is manifest that wages of all sorts are in most cases nothing but prices, i. e., the prices of labor services brought by the laborer to market. (b) Interest is also a plain case. As we have conceived it, the lender makes a sale, a sale of the service of waiting. In that way of putting it, interest is plainly a price. If one prefers the form of expression which describes the lending transaction as an exchanging of present for future goods plus a bonus, we still make the case one of exchange—and so of values. (c) Rent is obviously the price of something, i.e., the use of land unmodified or modified only by improvements which are indestructible. (d) The case of profits is, on the surface, less evident; but, at bottom, it is not materially different. The enterpreneur supply the service of responsibility-taking. From the very nature of this service, *it can not be sold directly;* but it is *virtually* sold in that the entrepreneur *unites this service* with the services which he buys from other agents in the productive processes and *sells the total resultant* on the general market. Profits, therefore, are in effect a price received for a service supplied.

The preceding discussion shows that incomes are *directly* determined under the principles of exchange. There is another less direct, but not unimportant, sense in which incomes are determined through exchange processes. The immediate income which most of us get is an income of money or its equivalent. To realize our income we turn this money income into commodities or services through exchange. But, obviously, the amount of the latter which we enjoy must depend in large measure on the money prices of these commodities and services.

Section D. The General Principle Determining the Regular Economic Incomes under Free Competition.

We have just seen that the regular economic incomes are either themselves prices,—wages, rent, interest,—or anyhow are dependent on the prices of other things,—profits. Further, the student has probably noted already that the incomes in question are really nothing more than the prices or values of those ultimate goods discussed in Section A, Chapter X. It follows therefore, that the principle there set forth as determining the

values of the ultimate cost goods is really the general principle which in the long run governs the regular economic incomes. For various reasons I shall here present the principle in slightly modified form.

Principle.—*Every economic income tends to approximate that quantity of goods which constitutes an expression* of the marginal utility (productivity) to people at large of the actual output—when competition is free, the natural output—of the type of service rendered by the receiver of said income, and which also, in the case of free competition, constitutes an expression of the net marginal disutility, original or derived, involved in furnishing said type of service.*

Explanatory Comments.

(a) The above principle is really a compound one, in that it asserts the coincidence of income both with the marginal *utility* and the marginal *disutility* attaching to the service rendered. The full title of the principle, therefore, would naturally be the Utility-Disutility Principle. It is possible, however, to treat the two parts as separate principles; and this is perhaps desirable at times in that the first is accepted by some writers who would stick at the second. Again, the first of the two principles, the utility one, is more often designated the Productivity Principle, because of the fact that the great majority of ultimate services are devoted, not to supplying utilities directly, but to producing other goods which supply utilities directly. This practice we shall usually follow whether referring to the principles separately or jointly considered. That is, we shall speak of the Productivity Principle, also of the Productivity-Disutility Principle, though not binding ourselves to exclude references to the Utility Principle.

Another designation which will frequently be given our principle is: The Service-Value Principle. This is intended to bring out the fact that, according to the principle, each person tends to receive a share which represents the value of his service or contribution.

(b) We have just seen that the formula above set forth really contains two principles in one. It should further be noted

*This is the strictly exact method of stating the point; but it is too roundabout for practical needs. Hereafter we shall usually say *equals* or *approximates* marginal significance or utility.

that the first of these is itself compound. It says that each income tends to approximate the marginal productivity of the *actual* output, while, under free competition, it tends to approximate the marginal productivity of the *natural* output. That is, shares correspond to marginal productivity anyhow,—even when monopoly prevails—; but, then, this is the marginal productivity of an artificially restricted output or supply If we have free competition, the marginal productivity involved is that of the *natural* output—the output which would be expected in view of the disutilities incurred.

(c) The principle does not say that the income tends to *equal* the marginal significance of the type of service furnished, but that it tends to *approximate* that sum. That is, marginal utility and marginal disutility constitute limits within which the economic shares naturally range. They can not be above marginal utility nor below marginal disutility,—the former is the buyer's maximum, the latter is the seller's minimum—; but they do not necessarily coincide with either. Thus (1) even in the case of limited stock goods, e.g., the use of land, where cost plays no part, value is fixed, precisely speaking, not at marginal utility but at some point ranging from marginal utility down to but not including the first sub-marginal utility; and, if these two utilities are somewhat widely separated, value may vary considerably under the same conditions of demand and supply. For example, let us suppose that there are 12 sites of a certain grade, and that a section of the demand schedule for the use of these sites runs as follows: 7 wanted at $550 or any figure below; 2 more wanted at $520 or any figure below; 3 more wanted at $500 or any figure below; and 3 more wanted at $440. Under these conditions rent could be $500 or any figure down to, but not including, $440. That is, rent would only *approximate* the marginal utility, not equal it. Again, (2) in the case of producible goods, there is another element contributing uncertainty. *Cost* may play a part. If the marginal cost (disutility) lies between the marginal utility and the first submarginal utility, then the value or price may be anything from marginal utility down to, and including, marginal cost. And, since the distance between them might be considerable, we could only say that price must tend to *approximate* each. (To get clearly in mind this case of a price ranging from marginal utility down to marginal cost, turn to problem 12, p. 270. Combine output schedule A with the

demand schedule, and you will have a price determined in the way described, save that in Distribution we have to do with *disutility* costs rather than with money costs.)

(d) The principle as stated teaches that each tends to get the sum which represents the *marginal* significance of his services. It is possible that a given laborer may be supplying a service for which the buyer would be willing to pay $10, though he only needs to pay $2, because the latter sum expresses the *marginal* utility of this type of labor-service. This is, of course, the same principle that we have in the case of ordinary goods, bread, meat, coffee, and so on. Whether ethically right or wrong, there is nothing peculiar about it.

(e) In the second part of our principle, it was said that every economic income tends to be one which constitutes an expression of the *net* marginal disutility, etc. The word "net" was introduced to provide for the following feature of the matter. In not a few cases, the supplying of a given service involves *advantages* as well as disutilities; e.g., university teaching gives men opportunity for the pursuit of scientific investigations, practicing law gives men standing in the opinion of their fellows, and so on. Now, it is evident that, in cases of this sort, the reward received by the man who supplies the service does not need to be large enough to express the full disutility of his task but only large enough to express that disutility minus the incidental advantages of the calling.

(f) In the second part of our principle it was said that incomes tend to approximate the marginal disutility, *original* or *derived*, etc. By an *original* disutility we mean one that attaches to the supplying of some service by the very nature of the case, e.g., the weariness and pain, which from the first accompany excessive labor. By a *derived* disutility we mean one which does not belong to the supplying of a service at the outset but comes to attach itself to said supplying of a service because of later developments. Here we have in mind the case of supplying land services. It is almost self-evident that doing this does not involve an original disutility. Originally the land costs nothing. Supplying it involves in the first instance no sacrifice. But this is not the end of the matter. The inevitable working of the principles of value *develops* a sacrifice cost for supplying land services. When through the growth of demand, a piece of

ground hitherto worthless, comes to yield a net income of $100, it inevitably takes on a value of, say, $2000; so that any person other than the present owner who should desire to get the right to this $100 income would have to pay for such right $2000. In short, to him the land would present itself as so much capital goods yielding 5 per cent as a payment for the abstinence or waiting involved. Here we have sacrifices which are necessarily undergone in connection with the supplying of land services, and which, therefore, must be recognized as disutility costs. Still they, obviously, are not primary, original, costs like labor and waiting, but only secondary, derivative, costs.

(g) The reader's study of the forces and processes determining normal price in the case of ordinary goods will probably safeguard him against a not uncommon misunderstanding or misapplication of the principle before us, which runs like this: "You economists are always teaching that, if there is free bargaining between laborers and capitalists, the former will get all they produce." In answer, I hardly need say that it is not primarily freedom of *bargaining between laborers and capitalists,* but rather freedom of *competition among capitalists* (entrepreneurs) which we expect will insure that laborers get substantially what they produce.

(h) Finally, it must not be supposed that, in affirming that the present system tends to give each one what he produces, we mean to claim that the present system is necessarily a just one. Thus, a man's power to contribute to the social welfare depends on his right to dispose not only of his own services but also of the services of some products or some land which he controls. But, obviously, it may be wrong to allow him to have the disposal of the services of products and land.

Argument for the General Truth of the Principle.

As was brought out in Section A, Chapter X., the problem now before us, i.e., the problem as to how the regular economic incomes are determined, is almost identical with the problem treated in that connection, i.e., the problem as to how the prices of the ultimate cost goods are determined. Further, it is hardly necessary to say that the solution reached for our earlier problem is substantially identical with that solution of our present problem, which is embodied in the Productivity-Disutility Principle just set forth and explained. Accordingly, it would

seem legitimate to assume that our principle has already been established; and this we will do, although, in discussing somewhat more fully particular incomes, we shall probably offer, incidentally, some further defense of the doctrine.

Section E. **Corollaries of the Productivity Principle.**

It hardly need be explained that no one, in affirming the truth of the Productivity principle, means to teach that it is precisely realized in the phenomena of actual life. Few contributors to production receive sums which exactly correspond to their contributions. Some get much more; a far larger number get less. But, again, it is hardly necessary to say that the case of the Productivity principle is not materially different from that of any other economic law. Those hypotheses which are assumed as the starting point of all economic reasoning, viz., absence of force, fraud, favoritism, monopoly, and other conditions interfering with freedom of competition and contract—are far from being realized. Further, were none of these manifestly abnormal elements present, we should still have human ignorance, folly, inertia, and so on, to hinder any precise realization of the economic principle under consideration, as in fact of any other economic principle. But, while the principles of economic science are nowhere rigidly operative, they are so far dominant that they can not in practical affairs be safely ignored. Looked at broadly, economic phenomena are under their control. While this statement is more conspicuously true of some other economic principles than of the one before us, still, it applies to this one also. Not a few well-meant but ill-directed reforms have been thwarted because of a disregarding of this principle. This point, however, is best brought out by presenting some corollaries.

Corollary 1. *Attempts to fix arbitrarily the amount of any economic share whether by governmental or private action without changing the demand for, or the supply of, the particular type of service involved can succeed only within the narrowest limits.*

Illustrations of such attempts: Statute of Laborers (1351), to keep wages at the old level in spite of the diminution of laborers through the black death; minimum wage laws; usury laws.

Note that the attempts which the corollary deals with are attempts arbitrarily to regulate the value of something *without*

changing demand or supply. It is at times possible arbitrarily to change prices, but only on condition that one accepts the consequences in the shape of changed demand or supply. Thus, a monopolist may arbitrarily raise his price, but only on condition that he reconciles himself to smaller sales. So the workmen in a particularly trade, if very strongly organized, may put up the wages of their trade, but at the same time they must be content with fewer jobs. So, again, if government insists on establishing a maximum price for some producible service below the cost of supplying that service, it will have to be satisfied with seeing the supply of said service fall off. If in any particular case the action taken to fix prices can not alter demand and supply conditions, it can seldom succeed at all.

Argument. The corollary before us really contains two elements: (1) An admission that the shares can be, in some degree, fixed arbitrarily by legislation, and (2) A claim that this is possible only within very narrow limits. Let us begin with the first point.

A. *Some arbitrary fixing of the shares is possible.* (1) A share can always be fixed *within* the limits set by the Productivity-Disutility Principle, as against any fixing of it at a point *outside* those limits because of a failure of competition or the intervention of any illegitimate element. For example, rent is not seldom driven *above* marginal productivity because of the ignorance or inertia of tenants; and government can bring it down to the proper level without colliding with regular economic forces. (2) It is probable that there is nearly always some leeway between the marginal utility and the first submarginal one and between the marginal disutility and the first supra-marginal one, i.e., our principle fixes, not the precise amount of each share, but only the limits within which it may range. But one point within these limits will reconcile supply and demand as well as another. Hence within these limits, legislation can arbitrarily fix on one particular point rather than another without coming into collision with regular economic forces. For example, if wages anywhere from $1.20 to $1.40 would reconcile demand and supply, the law might fix them at $1.40 without contravening our principle at all. (3) It is admitted that the prices of labor services or capital services or land services can be fixed at points somewhat *outside* the limits set by the Productivity-Disutility principle because of the inertia or weakness of buyers or sellers of those services. But, this being true, it is surely reasonable to claim that government, when public policy demands it, can take advantage of similar

weaknesses consciously to fix prices somewhat outside the limits fixed by our principle.

B. *Such arbitrary fixing of the economic shares is possible only within very narrow limits.* (1) Law can not long compel people to pay for anything more,—anyhow *much more,*—than it is worth to them. (2) Law can not long hinder people from paying for anything as much,—anyhow *almost* as much,—as it is worth to the marginal buyer; for this is the only way to insure that buyers at or within the margin will get the goods, as against buyers outside the margin. (3) Law can not long compel people to furnish anything for a price much below that which expresses to them the disutility incurred in furnishing that thing. (4) Law can not long hinder people from taking a price for some services substantially as low as that one which expresses the disutility incurred in furnishing said service.

Corollary 2. *Broadly speaking, the share per unit of each class of producing agencies varies inversely as the size of that class.*

Abundant land makes rent low; abundant capital makes interest low; abundant labor makes wages low. This obviously results from the joint action of the principle of productivity and the law of diminishing returns. Each productive agent tends to get an amount equal in value to what the marginal member of his class produces. But, since the larger his class the smaller will be the product of the marginal member, therefore the larger his class the smaller the income which each member gets.

Caution:—Remember that every scientific principle assumes *continuity of conditions.* An increase in the volume of capital would not necessarily lower the rate of interest if accompanied by the introduction of new and more efficient methods of employing that capital.

Corollary 3. *Broadly speaking, the share per unit of each class of producing agencies varies directly as the size of other classes which co-operate with it.*

If capital increases in volume, not only does the rate of return to capital tend to fall, it is equally true that the rate of return to labor and land also tends to rise.

Argument. A. That increasing the size of one class increases the share of the others. (1) According to the last corollary, the condition supposed *lowers the rate of return* to the changing factor. (2) Since the *total* going to said changing factor

out of the product of earlier units of the combination is fixed by multiplying the number of units into the rate, said total will be *smaller* than before. (3) In consequence the portion of the product of earlier units going to the other factors, being that product minus the total going to the changing factor, will be *larger* than before. Illustration: Ignoring capital, let us suppose that a certain piece of land will yield to one man's labor 14 bushels of wheat; to the labor of two men, 20 bushels; to that of three men, 24 bushels; and to that of four men, 26 bushels. When, now, laborers are so few that land needs to be worked in the first stage only, the whole product, 14 bushels, will go to labor. When it becomes necessary to put on a second man, he will add only 6 bushels, therefore will get only 6 bushels, and *the first man also will get only 6 bushels,* thus giving the landlord 20 minus 12 or 8 bushels rent. So when a third man has to go on, his product and share will be 4 bushels; the shares of laborers 1 and 2 will fall to the same figure, and the total of the landlord will become 24 minus 12, or 12 bushels. Thus, increasing the number of laborers lowers their share and raises that of the landlord.

B. That *diminishing* the size of one class diminishes the shares of the others. Here the proof merely reverses the preceding. Let the student work it out for himself.

Corollary 4. *Increase of population in itself tends to lower all shares but rent, most of all common wages.*

This is an evident corollary from the preceding proposition. Increasing population means, in general, lowering the margin of industry, bringing into use lower grades of land; since land as such is non-increasable. Hence the marginal return to land i. e., the portion of the total which goes to the human factors in production, labor, waiting, and risk-taking must, in the absence of new conditions, tend to decline. The lowering tendency is greatest in the case of wages, since a normal increase in population tends to increase the supply of labor more than that of waiting or risk-taking.

Note 1:—It is sometimes argued that increase in population does not lower wages for the reason that each person brings into the world capacity to *produce* as well as capacity to *consume.* He adds, therefore, to the supply of goods just as much as to the demand. This merely shows that there is not ordinarily any danger that the new laborer will be unable to get any wages at all. It does not show that he will be able to

get as high wages as before. Since the stock of natural factors in production and the stock of capital are not increased by the incoming of the new laborers, therefore the marginal productivity of labor, and with it the wages of labor, must tend to be lowered.

Note 2:—It is sometimes argued that increase in population, in that it makes a larger market and so justifies the resort to extreme specialization, large scale production, etc., really raises marginal productivity rather than lowering it, and so raises the shares going to labor and capital. This is doubtless possible, but not in my opinion, probable. In most countries population has long since reached the size which would justify a resort to the most efficient methods. If a particular community is failing to take advantage of the possibilities of large-scale production because markets are too small to justify a resort to that method, this smallness of the markets is probably not due to the lack of the population necessary to make a large market, but to the lack of those facilities for transportation and communication in general which are necessary to coalesce the different small markets into one large one.

Corollary 5. *Any cause which restricts competition among the persons who supply a particular type of service tends to increase the rate of income received by the said persons.*

It is of course a fact familiar to the student that producers in all lines are disposed to adopt measures to limit competition, each in his particular line. Monopoly in some form or degree is a condition of things which consciously or unconsciously almost every one tries to see realized in his special field. Perhaps the entrepreneurs in some industry, e. g., sugar production, form a trust, thus establishing a combination so wide-reaching as to approximate monopoly. Or perhaps the men engaged in building houses in a particular city form an agreement whereby they promise not to compete in the fullest sense against each other. Or perhaps the painters combine to restrict their numbers by refusing to take on more than a fixed number of apprentices at any one time. Now, it is doubtless hoped in each of these cases that the action described will increase the returns to the persons interested; the entrepreneurs in sugar and the contractors will get larger profits, and the workmen in the case of painting will get larger wages. Further it is doubtless true that the result thus hoped for is largely realized. Such restrictions of competition do usually increase the incomes of the persons interested. The reasons are plain. Diminished competition means decreased output, therefore higher marginal productivity or utility, therefore higher price for the service

involved. The principle as stated says "rate of income" rather than simply "income" in order to provide for cases where restricting of output might increase the return per unit of service performed but not per person. Thus, the whole body of laborers might unite to keep say one-fifth of their number idle, hoping thereby to increase the total income of their class*; while in fact they might thereby lower the total though increasing the rate, i. e., the income per unit of service or effort.

Corollary 6. *Any cause which restricts competition among the persons who supply a particular sub-class of services tends to lower the incomes of the persons who supply related sub-classes of services.*

Example. Restricting competition among painters tends to lower the wages in inferior trades.

As we have seen, it is very common to try to limit the output of one's own type of service in order thereby to raise the price of it. It is less common, but by no means rare, to hear persons who have inaugurated this policy attempting to enlist the sympathy and support of others as if the public in general or producers in general were to gain by it. That persons sometimes succeed in this attempt does not alter the facts of the case Their position is, generally speaking, quite untenable. We may sympathize with their aims, may even be glad to suffer some loss in helping them to realize those aims; but we are bound to experience a loss—the policy in question is against the immediate economic interests of all but the persons directly concerned.

Argument. Restricting competition within any sub-class of productive agencies drives the persons shut out of that sub-class into related sub-classes, thereby increasing the size of said sub-classes. As a consequence, under the working of Corollary 2, the share per unit of those classes is lowered.

Corollary 7. *Broadly speaking, improvements in method through discovery and invention tend more especially to increase interest and profits.*

Such improvements increase the marginal productivity of

*It probably can be shown that as a mere matter of economic theory, this is a *possible* result. It does not, however, seem of sufficient importance to reward the effort. I will perhaps insert a discussion of the matter in the next edition of the Readings.

waiting and risk-taking, and so fulfill the conditions of the Principle.

Note:—This is not to say that improvements in method bring no advantage to laborers;—but this advantage comes *indirectly* in lowered prices and so larger *real* wages.

Corollary 8. *The normal income for a laborer of any particular class tends to approximate the income needed to maintain said laborer in accord with the standard of living looked upon as necessary by this particular class of persons in the particular time and place.*

Note 1. This principle is commonly stated as if applicable only to men who labor with their hands, or even, among these, only to the lower or lowest types. In fact, it is true of all classes, even professional people.

Note 2. As applied to common workmen, this principle should be sharply distinguished from the "iron law of wages" commonly, but erroneously, attributed to the classical economists. That theory affirms that the wages of common laborers tend to equal the bare or necessary cost of subsistence,—no allowance being made for what people look on as necessary to a decent living.

Argument. A. The case of the professions and other types of labor above the lowest. (1) An income *below* the standard of living income can not be maintained; because persons in these classes have always as an alternative dropping into some lower class. This they will do if incomes fall below the recognized standard,—with the result that the supply of the services involved will fall off, their marginal utility will rise, and so their price will rise. (2) An income materially above the standard can not long be maintained, because it will cause an influx from other closely related callings, which will lower marginal utility and so lower price (wages).

B. The case of common labor. (1) An income *below* the standard can not permanently be maintained, because it will hinder marriage, hence cut down the supply of labor, therefore raise its marginal utility and so its price. (2) An income *above* the standard will, of course, tend to have the opposite effect, increasing population, lowering marginal utility, and so lowering wages.

Comment. It is an evident deduction from the corollary before us that *in the long run*, the rate of wages can be changed by changing the ideals of working men. But it hardly need be remarked that emphasis must be laid on the phrase "in the long run." Of course, it is not possible for a particular generation

of laborers to raise wages, if these are already as high as the marginal productivity of labor, *simply by resolving to live better, to spend more.* The setting of a higher standard of living can influence wages only in so far as it *restricts population and, so, raises the marginal productivity of labor.* It naturally follows from what has just been said, and it has always been recognized by economists that it is possible for adverse conditions to hold actual wages below the standard until the working classes insensibly come to accept this lower wage level as a new standard. On the other hand, favorable circumstances may work the opposite result. In short, a new level of wages brought about, and for some time maintained, by temporary causes tends to persist. (Well treated by Malthus, McCulloch, and Walker.)

ILLUSTRATIVE PROBLEMS.

1. The following table contains corresponding sections from hypothetical output and demand schedules of a certain type of labor. On the basis of this table, answer the questions following:

Output hours	Utility (or) Disutility cents	Demand hours
700	40	100
400	35	120
280	30	140
200	25	200
140	22	250
120	20	400
100	18	500
80	15	800

(a) What would wages per hour tend to be?
(b) How much is marginal utility? average utility?
(c) What do you mean by marginal utility in this case?
(d) How much is marginal cost or disutility? average cost?
(e) What is meant by marginal cost or disutility here?
(f) Which determines wages? Why do you think so?

2. Suppose the schedules in Problem 1 be changed to read as follows:

Output hours	Utility (or) Disutility cents	Demand hours
280	32	170
280	31	170
280	30	170
200	29	200
200	28	200
200	27	200
200	26	200
200	25	240
150	24	240
150	23	240

(a) What different rates of wages might prevail?
(b) What would be the marginal utility of labor under each?
(c) What the marginal disutility?
(d) What would fix the limits of variation?
(e) By what process would the rate be finally determined?
(f) Change the demand figure at 25 and 24 cents from 240 to 200, and answer questions (a) to (e).
(g) Change the output at 29 cents from 200 to 280, and answer questions (a) to (e).

3. If competition were in the highest degree free, which of the above schedules, that of Problem 1 or that of Problem 2, would more probably express the facts of life? Give reasons.

4. Suppose that at a certain date, competition being free and general conditions normal, the rate of wages for ordinary labor is $1.50 per day; and suppose, further, that, under these conditions, the legislature passes a law forbidding any one to pay or receive wages less than $5 per day.

Do your believe that this would result in giving every one wages of $5 per day? Why?

5. "The logic of their (the orthodox economists') teaching, has been that wages which were *determined by free bargaining* between capital and labor would be just or reasonable wages."

Point out wherein the above is incorrect, or at least inadequate, as a statement of the real teaching of the economists.

6. "In a country possessed of rich and abundant natural resources wages would naturally be higher than in another having an equal population but inferior natural resources." Argue this out fully.

7. "Wages are apt to be fixed much closer to the minimum which the laborer will take than the maximum which the employer will pay; for the latter has much more skill and strength in bargaining."

Perhaps the above is true; but the argument given to prove it is by no means decisive. It is quite possible that wages should be kept close to the employer's maximum in spite of the laborer's weakness in bargaining because the first extra-marginal utility is close to the employer's maximum. Explain just what this means and how it can be true,—constructing for the purpose schedules something like those which appear in Problems 1 and 2.

8. Suppose that a certain country receives a large body of immigrants, amounting to, say, twenty per cent of its laborers of a particular class.

(a) Under the principle of productivity, what would tend to be the effect on wages? Explain.

(b) If these immigrants brought in knowledge and skill in their craft far beyond that possessed by the home laborers, how would this immigration tend to affect wages in the long run? Explain.

9. Below is given a section of a schedule assumed to represent the supply and demand schedule for the use of capital:

Sup.	Price	Dem.
4.1 billions	10%	3 billions
4 "	9%	3.5 "
3.9 "	8%	4 "
3.8 "	7%	4.5 "
3.7 "	6%	5 "
3.6 "	5%	5.5 "

(a) What will tend to be the rate of interest in this case?
(b) What will set the limits to price variation?
(c) Is it likely that a usury law fixing the rate of interest at 5 per cent would be effective? Why do you think so?

10. What bearing does Corollary 8 of our principle have on the question whether Chinese immigration should, or should not, be discouraged?

11. Give some reasons for expecting that, under the natural working of the Productivity-Disutility principle, the incomes of university professors would be smaller than those of men having no greater natural endowment who are working in other fields, say engineering, law, or business.

12. Discuss in a similar way the question why the wages of men are likely to be higher than those of women in similar lines.

13. What connection is there between the Law of Diminishing Returns and the contention of many writers that conscious restraint should be placed on the growth of population?

14. "Formerly the workman owned the instruments with which he worked. To-day these instruments are all owned by another class—the capitalists. Now, since without instruments the workman's labor-power is useless, he is obliged to accept such wages as the capitalist may dictate even though these are far below what his labor produces."
(a) Show that the ownership of the instruments of industry by a class different from the users of those instruments does not of itself lead to the result indicated.
(b) Write out an analogue to the above quotation in which the capitalist and workman change places.

15. Why is it to be expected that wages would be higher in the United States than in Europe? Argue the matter out on the basis of principles.

16. Suppose that by the draining of swamp lands, one-fifth should be added to the tillable soil of the country. What effect would it tend to have on wages? on profits? on agricultural rent? Explain in each case.

17. Suppose that land and labor of just one kind were the only factors in production, that land was of different grades shading one into another, that not all the land in existence was under cultivation, and that wheat raising was the only industry. Show that wages would tend to equal the marginal product of labor.

18. It was generally held by the economists of the so-called classical school that, if the methods of production undergo no substantial change while population keeps on increasing, wages, interest, and profits will tend to get smaller and smaller and rent (economic rent) to get larger and larger.

Show that this doctrine is a natural deduction from the theory that the shares of labor, waiting, and responsibility-taking are determined by their respective marginal productivities.

19. "It is a mistake to suppose that competition merely keeps down wages. It is equally the means by which they are kept up." Mill. Explain.

20. "No remedies for low wages have the smallest chance of being efficacious, which do not operate on and through the minds and habits of the people." Mill.

Argue for the truth of this statement. (It probably needs qualification; but leave that for some other occasion.)

Section F. **The Theory of Employment.**

In dealing with labor's share in distribution it has been usual to approach some of its problems from the standpoint of *employment*. How far this procedure is really profitable one can not easily decide; but in view of popular usage it seems best to give this phase of the matter some consideration.

1. Employment and the Demand for Goods.

Immediately, of course, labor is bought by enterpreneurs; and so, in a sense, the amount of employment depends on the demand of entrepreneurs. But it is obvious that entrepreneurs do not want labor save as they intend to produce goods with it and that they are not going to produce goods save as the public demand them. Less immediately, therefore, the demand of entrepreneurs for labor—the amount of employment—is in some degree or sense determined by the public's demand for goods. But the public's demand for goods is, in the last analysis, dependent on their output of goods. (Say's Law). Only by producing goods can we create a demand for the goods which other producers get out and, therefore, only by this process can we create a demand for the labor of the workmen who assist those other producers in getting out said goods.

Principle. *In so far as employment depends on the demand for products, it changes with, and only with, the output of products for the market.*

Some of the most important applications of this principle were brought out in the problems given under Say's Law (pp. 148-149), our present discussion of them, therefore, will be brief. brief.

Corollary 1. *The destruction of objects of wealth which are*

bound to be replaced does not increase employment. See Reading XII.

Corollary 2. *Private expenditure for extravagances, as contrasted with other forms of expenditure or even with hoarding, does not increase employment.*

Argument: (a) $10,000 spent in buying bread or cotton cloth contributes just as much to make a demand for labor as $10,000 spent in buying fireworks or champagne.

(b) $10,000 spent in buying 500 ounces of gold coin to bury in the ground contributes to the demand for labor just as much as $10,000 spent on gold for plate.

Note 1. It is possible to maintain that some forms of expenditure give more employment than others, since labor, as compared with capital and land, plays a larger part in some forms of production than in others. But economists have with practical unanimity held that expenditures for extravagances contribute less to create employment than expenditure for capital goods,—producers' goods—e.g., engines, machinery, etc.

Note 2. The case of hoarding brought out in the theorem has merely theoretic interest. Practically, true hoarding is in our day a negligible phenomenon. The rich man spends his money (or lends it to some one who spends it) for some goods or other, whether it be for consumption goods or for those devoted to production.

Note 3. *Temporary* hoarding may diminish the demand for labor. It will not cause an increased demand for gold and will diminish the demand for other things.

Corollary 3. *Governmental extravagance does not increase employment.*

The money taken from taxpayers would have been used to buy goods and, so, would have made employment, had it been left with the taxpayers.

Note. 1. Of course, laborers, as consumers, may receive advantages from governmental expenditures just as other citizens do.

Note 2. Governmental extravagance may temporarily increase employment in a period of industrial stagnation. Here there is more or less *temporary* hoarding. See Note 3 above.

Corollary 4. *Producing for oneself, when it is done without decreasing one's output for the market, does not diminish employment.*

For example, a person who produces through his property or his efforts or both, say, $1,000 worth of products each year does not diminish employment by putting in some spare time

building himself a boat,—it being assumed that his outside production is not changed.

Corollary 5. *Broadly speaking, an increase in the supply of labor services creates opportunities for employment as well as absorbing them, though not usually in quite the same proportion.*

Caution. This does not mean that the process in question will have no adverse effect. Without doubt it will tend to cause some decline in the rate of wages, under the working of the principle of diminishing productivity. But this result is not to be confused with the question of employment. Besides, in not a few cases which receive considerable attention, the influence on wages would be negligible.

Argument. This proposition is not so evident as the preceding; nor can it be accepted without larger qualifications and limitations. But it is still substantially true. If the whole producing group creates a demand for labor by producing, it follows that the labor part of the producing group creates a demand for labor by its producing.

Doubtless it must be admitted that *not all* the demand created by labor's production will eventuate in a demand for other labor; since labor's demand for goods will be a demand for all the factors necessary to produce those goods, viz., land services and capital services, as well as labor services. But with the great majority of commodities, the contribution of labor, direct or indirect is by all odds the most important element; so that a demand for one dollar's worth of product is a demand for almost that much labor, counting, of course, all the labor which from first to last contributes to the result.*

2. Employment as Dependent on the Supply of Land and Capital.

In carrying forward the argument of the preceding discussion. it was assumed that, in demanding goods, the public create an equal demand for labor, and, so, create an equal amount of employment. But we hardly need say that this presents only a partial view of the matter, since production requires other factors besides labor, viz., land and capital. A demand for goods can not constitute a demand for the labor needed to produce those goods, unless there are land and capital available to complete the combination.†

*I am not at all sure that this is not overstated. But I think it is not.

† It is, of course, equally true that a demand for goods does not constitute a demand for the land necessary to produce those goods, unless there are available labor and capital to complete the combination. So a similar affirmation may be made with respect to capital. In short, in a sense each kind of productive goods constitutes a demand for the others. (Fetter, p. 218.)

The preceding comments have brought out the point that opportunities for employment are dependent on land and capital as being co-ordinate requisites of production, the presence of which is, therefore, necessary if there is to be a demand for labor. There is another reason for affirming the special dependence of labor for employment on capital. Besides supplying the produced materials and instruments of production, capital commonly plays to a greater or less degree another role, viz., *advancing the wages of current labor.* Doubtless it is true that in some cases wages are not advanced at all. But in the majority of cases, they *are* advanced in the sense that a large part of the wages paid by the entrepreneurs during any particular week or month are paid for labor which is devoted to producing *incomplete* goods,—goods which will give money returns only at a later period. Because of this fact production involves a *waiting* additional to that involved in supplying the materials and instruments necessary. In short production requires somewhere in the community a fund of circulating capital, necessary to supply the current wants of producers. As a very large part of its duty will be to make advances to laborers, it may well be called the wage fund.

Note. Without much question the classical economists for a time pushed too far the doctrine that employment and wages are dependent on capital, developing a special theory of wages, known as the wage-fund theory. According to this doctrine in its cruder form, there is at any moment a fairly determinate sum of capital devoted to the purchase of labor services, so that, unless the number of workmen changes, no change in the average of wages can be made,—an increase to one class being offset by a corresponding decrease to some other. In practical application, this theory was made to prove the futility of strikes and most other methods of raising wages. So stated and so used, the doctrine probably did not deserve much consideration. Still it is a mistake to deny the fundamental truth involved in the doctrine. Employment is more or less dependent on a special section of capital, reasonably enough called the wage-fund. Other things being equal, workmen will fare better in the community which has the ampler stock of circulating capital available for the advancing of wages.

As a rough summary of the preceding discussion, we may lay down the following:

Principle. *Broadly speaking, opportunities for employment, anyhow satisfactory opportunities, vary with the abundance of natural resources and capital.*

3. The Limits of Possible Employment.

In the preceding discussion we brought out the reciprocal dependence of land, capital, and labor for opportunity. Rigidly interpreted, this doctrine would suggest that there is a certain definite limit to the opportunities of each of these factors,—or, for our special purpose, to those going to labor, i.e., to employment. Given a certain outfit of natural resources and capital, there will be opportunity to utilize a certain amount of labor and no more. Such an interpretation would nicely support the popular notion that there are just so many jobs, no more and no less, so that giving one of them to one person necessarily takes one from some body else and *vice versa*. To the trained economist, this way of looking at the matter seems quite unwarranted. But possibly our present discussion may serve to give it some color of sense. Does not the affirmation that land and capital, as well as labor, are essential to production support the contention that labor opportunities are strictly limited? In answering this, we have to remind ourselves that all industry is, during some period anyhow, in the condition of Returns Increasable at Diminishing Rate. That is, even if the available quantities of land and capital are constant, yet increasing the amount of labor *will increase the total return* to the combination *though not proportionately*. Since the increase in return is the contribution in the product which will be credited to the additional labor, and as such contribution will determine the price of labor, it follows that the new conditions will lower wages, still this will not alter the fact that the new labor has found employment. Accordingly, as a summary of the situation, we seem called on to say that, *under ordinary conditions no one need lack employment if he is content to accept that wage which expresses the new marginal productivity of labor.*

The point made in the preceding paragraph—that opportunities for employment can be indefinitely increased—was perhaps sufficiently qualified to make it substantially true. Still the qualification needs development. As a basis for the argument, it was said that, *during some period anyhow,* industry is in the condition of returns *increasable* at diminishing rate. Now, it is quite as certainly possible, that industry should reach a stage where its returns are *substantially fixed,* where they have reached their maximum:—even if the efforts of another laborer could increase the output somewhat, still the additional amount

would be so small that even with the extremest conceivable economy it would not furnish subsistence. That is, employment is so far dependent on land and capital, and the possibilities of industry are so limited that *a time is always liable to come when opportunities for employment can not experience any measurable increase,*—no more laborers can be utilized.

We have just seen that an absolute limit to employment may be reached by adding labor till the combination is brought to the point of substantially maximum returns. Doubtless in actual life the practical, effective limit is reached considerably earlier than this. The decline in the marginal productivity of labor does not go on till men *could* live on no less. Rather it stops where they *will* live on no less. In earlier times conquering migration cut the Gordian knot. In our day peaceful emigration commonly proves sufficient, though occasionally force in the shape of colonial wars comes to the front.*

4. Employment as Affected by the Rivalry of Capital.

Roundabout methods are generally *labor-saving* methods, hence methods which in themselves decrease the need for labor as compared with the need for capital Capital therefore appears as in some sense the rival or competitor of labor. This fact has naturally given rise to much controversy as to whether the introduction of approved methods does not diminish the total demand for labor. (1) All are agreed that *immediately* certain classes of laborers suffer by being thrown out of employment and compelled to make new adjustments. (2) Experience commonly shows that, in any given industry taken as a whole, there is little, if any, decrease in employment; because the lowered price due to lowered cost so stimulates demand that the old workers are needed to meet that demand even under the new and more efficient methods. (3) The lowered price due to lowered cost, if it does not create new demand, anyhow releases buying power saved because of the lower price, which will be spent on new products, save on the almost inconceivable hypothesis that goods have become so abundant and their marginal utility so low that people no longer *want* more things. But supplying these new products will furnish employment opportunities for the labor displaced in the old industries.

*Further, in our day relief has repeatedly come from great improvements in method which have pushed far into the distance the point of maximum returns.

Note. These last considerations would not show that the introduction of improvements has no tendency to *lower wages* by making labor relatively more abundant and so lowering its marginal utility. We are here concerned only with *opportunities* for employment at some wage or other.

5. Employment and Foreign Trade.

One of the most obstinate of popular fallacies is the notion that the employment opportunities of the people of a particular community are diminished by carrying on trade with other communities. Buying outside takes away jobs from one's own people. Against this notion economists have always protested.

Principle. *Broadly speaking, changes in the extent to which goods are bought abroad have no effect on the amount of employment.*

Caution. Remember that in this, as in any principle of science, all conditions other than the one under consideration are assumed to be unchanged. For example, we must not suppose that, when we stop buying certain things abroad, there is an inflow of capital from abroad. Such a procedure would be introducing a change in conditions *other* than a mere decline of foreign buying.

Argument. The principle laid down is quite obviously a mere corollary from the Principle of Reciprocity discussed in Chapter VII. Foreign trade is necessarily reciprocal. If we are buying abroad, we must be selling abroad,—must be delivering the foreigner some form of wealth, anyhow money. But, in producing the commodity or commodities with which we pay the foreigner for our purchases, we obviously create opportunities for employment just as truly as we should by producing the imported goods at home. There are some valid, if not weighty, arguments for artificially developing certain industries within our own borders; but this "more employment" argument is not one of them.

ILLUSTRATIVE PROBLEMS.

1. From Marryatt's *Midshipman Easy*:

"Yes, my dear, this is all very well in the abstract, but how does it work?"

"It works well. The luxury, the pampered state, the idleness,—if you please, the wickedness of the rich, all contribute to the support, the comfort, and the employment of the poor. You may behold extravagance,—it is a vice; but that very extravagance circulates money, and the vice of one contributes to the happiness of many." Criticise.

2. "If there were two communities on the same industrial level, each with an aggregate income of $10,000,000,000, but one of these distributed this income so that the wage earners took only $3,000,000,000, while in the other they took $5,000,000,000, surely no one will contend that the volume of general demand would not be larger in the latter." Criticise.

3. Most economists believe in what we called Say's Law; yet most of them also favor "making work" for the laboring classes during an industrial depression, i. e., spending money for enterprises which would not for their own sakes have been undertaken at this time.

(a) Show that a resort to this expedient seems at first sight inconsistent with Say's Law.

(b) Defend a resort to this expedient in exceptional cases.

4. "It is a pretty well established principle that the extent of the demand for commodities determines business prosperity. It is equally clear that this demand is governed by the consumption of wealth by the masses, and that this consumption is determined by the general standard of living in the community. Therefore whatever tends to develop that standard of living tends to promote the sale of commodities and thus to increase production. Therefore it is necessary to raise the standard of wages to increase production." (R. B. Cunninghame Graham.) Criticise carefully.

5. A millionaire of Los Angeles recently donated $300,000 to maintain a certain propaganda. The Detroit News in an editorial comments on the fact as follows: "There is little excuse for appropriating money with which to put human intelligence and the freedom of the will in bondage. However, $300,000 will furnish employment to a certain number of human beings anyway. The money will flow out through the channels of trade and be very helpful to the commercial world, and that is something to be thankful for."

(a) Will this expenditure increase the total amount of employment? Explain.

(b) Is it probable that the channels of trade will have any more money flowing in them? Explain.

6. "It seems certain that, for the existing population anyhow, the final effect of all successful efforts to establish a wage minimum, whether by public or private action, must be *to increase the number of the permanently unemployed.*"

Argue for the truth of this statement.

7. "Admitting the truth of the statement in Problem 6, I still believe that wages will in the long run be raised as a result of the various efforts which are being made to fix a minimum below which wages are not to be allowed to fall."

Argue for the soundness of this opinion.

8. "In the long run the entrance of women and children into the field of labor does not drive out an equal amount of male

labor. Their products add as much to the demand for labor as their labor adds to the supply of labor. Consequently no one should object to the employment of women and children."

Is this argument conclusive against laws restricting the employment in question?

Section G. **Special Consideration of Interest.**

As the student is doubtless aware, it is the incomes derived from property, rather than those derived from labor, which have given rise to serious controversies, whether in respect to their origin, their determination, or their legitimacy. These incomes, we remember, are rent, interest, and profits. Among these, rent presents comparatively few difficulties and has given rise to few great theoretic differences; though, even in this case, perfect unanimity is lacking. But interest and profits always have been, and still are, subjects much in controversy. Of the two, interest presents the greatest difficulties and will be treated first.

1. The Interest Phenomenon.

Our first task must be to develop fairly clear and definite ideas of what the interest phenomenon is. The most familiar case is that of the ordinary money loan; i. e., a transaction in which the lender puts at the complete disposal of the borrower a sum of money, which money or an equivalent sum, is to be returned to the lender after a stated period,—and, in return for the advantages which are supposed to accrue to the borrower from this operation, said borrower makes to the lender a special payment amounting to a small per cent of the sum loaned and proportioned to the length of time for which the loan is to run. Said special payment is of course the interest we are talking about.

The type of interest involved in the case given above is commonly called *contractual,* or, sometimes, *explicit* interest. It is open, avowed interest. But there are besides many cases in which interest is just as truly present, but in which it is more or less concealed, disguised,—*implicit* interest. Thus, merchants frequently charge higher prices for the same goods to credit customers than to those who pay cash.* Here the difference in price may be characterized as amounting to interest,—as being in effect interest. The merchant, in having to wait for his pay,

*It is assumed that this addition to price is not made in order to cover *risk.*

in effect lends to the buyer a sum of money equal to the value of the goods. If he openly charged interest on the account, we should have a case of explicit interest. But he considers it better policy to conceal the fact and so merely charges a higher price for the goods.

A rather more significant case of implicit interest is to be found in the relation between the prices of ordinary producible goods and their costs in other goods, current labor, and risk-taking. Each unit of product has to have a price high enough to cover, not only the items just enumerated, but also interest on the invested capital, i. e., on the sum of money which the entrepreneur could get from the sale of his whole outfit. This must be so, the business man would say, because otherwise no one would devote his money to manufacturing commodities; instead every one would *lend* it, getting contractual or explicit interest. This is inadequate if it is meant to be a *complete* explanation of interest; since sums of money are, so to speak, merely *formal* capital, and the deeper explanation must be found in the relations to each other of *those things which borrowed money is used to buy* rather than in money relations as such. But, after all, treating the fact that money-loan interest exists as a reason why implicit interest must exist is not substantially wrong; since it is in the market for money-loans that the various forces which are causing interest to exist and determining its rate, most completely manifest themselves. Accordingly, the business man's method of arguing at this point supplies a clue which will tell us where to look for implicit interest. That is, wherever we find a person occupying an economic relation such that because of that relation he is depriving himself of an opportunity to make money loans and receive interest therefor, we may be sure that we have a case of implicit interest. Such a situation we shall always have when the person in question owns property which gives off its services only piecemeal, which, therefore, must be owned during some measurable period of time. In short, every case of durable goods involves the interest phenomenon.

Illustrative Problems.

1. Show just how the interest phenomenon is involved in the non-producible income-bearers discussed in Section G, 3, Chapter IX.

2. Do the same for producible income-bearers, say, gasoline

launches rented by the day or week at some summer resort. Compare the two cases.

3. Try to make an argument to prove that even in the case of a durable good which is not an income-bearer in the ordinary sense, being devoted to yielding its owner an income of services used directly to give himself satisfactions, we must believe that interest is in a very real sense involved. (Take the example of a $1,200 automobile destined for the buyer's own use, expected to last only four years, and ask yourself how much valuation he must set on an annual use of the machine to make his purchase reasonable.)

2. Essential Nature of the Interest Phenomenon.

The surface marks of the interest phenomenon offer no great difficulty and have probably been brought out with sufficient distinctness in the preceding discussion. When, however, we inquire as to the real inner nature of interest, we have a very different story. From the earliest time there have been serious controversies with respect to the rightfulness of interest-taking; and these controversies have continued unsettled down to our own day. Now, this perennial character of the controversy is largely due to the difficulties experienced in trying to ascertain the real nature and origin of interest.

Of the various attempts to characterize with precision the real nature of interest, *two* have been most in vogue and perhaps may be said to include most of the others: the *use* theory and the *exchange* theory. The former way of conceiving the matter is almost universal in the business world and has been widely held by economists, though in recent years it has largely given place to the exchange theory. According to the *use* doctrine, interest is a payment for the use of capital conceived as a sum of money or money value embodied in any capital good. If a manufacturer borrows at the bank on his ninety-day note $600 to buy 200 tons of coal wherewith to run his engines, he obviously gets all the uses of the coal but in addition he may be said to get a ninety-days use of the $600 embodied in the coal. Similarly, if Mr. Elder buys a $1200 automobile on a one-year note, he gets all the services which any cash buyer could get out of the machine and in addition is thought of as getting the use of $1200 for a year's time.

In explaining the nature of the *exchange* theory, our best procedure perhaps is to begin by pointing out the fault in the

use doctrine. No one denies, of course, that the borrower or the credit buyer gets some advantage, service, utility, in addition to the services of the coal or the automobile;—if he did not, he surely would not pay the interest. But those who reject the use theory affirm that that theory errs in its method of characterizing or classifying said advantage or service. The advantage of the man who buys goods with borrowed money or on credit consists, not in receiving a greater sum of utilities than the men who buy similar goods with their own money or for cash, but in that he pays what is to him a smaller price. He is given all the prerogatives which belong to an owner who has purchased the goods, although he has not made the complementary sacrifice involved in buying them,—has not in the deepest sense bought them at all. In short his additional advantage over the non-credit buyer consists in *postponing the sacrifice* necessary to becoming the rightful owner of the utilities of the goods.

The *exchange* theory as to the nature of interest is now readily comprehended. According to that theory, interest is in reality a bonus, a premium, a something to boot which the man who buys goods now but does not himself pay for them till some future time, gives to the person who enables him to effect this transaction. Or, looking at the matter from the lender's end, as better fits some cases, interest is a bonus or premium which the man who relinquishes his right to goods now but gets his pay only at a later date, receives for making this exchange. To put the theory in more conventional form: Whenever present goods are exchanged for future goods, a bonus or premium is paid *by* the party who brings to the exchange future goods, *to* the party who brings present goods; and this bonus or premium constitutes interest.

Note. While I am disposed to agree with the advocates of the exchange theory, I find it difficult to avoid altogether such expressions as this: "Interest is paid for the use of capital, or the services of capital"; and I do not believe that this usage is productive of any serious harm.

3. Are Capital-services Productive?

In discussing the Productivity Principle in the earlier part of this chapter, it was assumed that that principle applies to the services of capital as well as to those of land and labor. But, obviously, this is legitimate only on condition that capital ser-

vices are productive in some serious meaning of the term. But this is an assumption which would seem to many persons quite unwarranted. Indeed, it would seem that any one who gives his adhesion to the Exchange theory just explained is thereby estopped from claiming that capital is productive. Is it not in the very essence of that theory to deny productivity in that it declares that the credit buyer does not get any more utilities than the cash buyer, but merely postpones payment for those he does get? Now, I am not disposed to deny that there are definitions of the word *produce* eminently convenient if not quite indispensable, which are too narrow to include the offices of capital. I might even be willing to concede that the definition suitable for the majority of purposes is in this class. But we must still insist that, in a deeper and very important sense, capital is truly productive,—the capitalist is a producer. Production, in its fullest sense, must include every act which is consciously performed in response to economic motives and which results in some economic advantage, i. e., an advantage for which men are willing to pay a price. Any narrower definition than this is entirely unsuited for dealing with the problems of distribution which inevitably bring to the front questions of right and wrong, claims or rights produced by actions, and which, in doing this, compel us to locate *responsibility*,—to determine to whom and to what, any particular advantage is properly to be credited. Again, this definition is alone adequate in that it brings out the only *result* which can properly claim to be the true end of all economic production—i. e., *advantage*. Time was when production must result in added raw materials. Later thinkers became liberal enough to be satisfied if it only manufactured those materials. Still later the mere transporting of things was recognized as productive. And so on. Now, all this shows that the truly correct procedure is to admit that the only necessary mark of production as respects the result, is that it *brings into existence advantages*. Judged by such a conception of production, the role of the capitalist is surely a productive one.

In the preceding discussion we have argued for the productivity of capital broadly, in a general way. The great importance of the question seems to demand a little more specific consideration of the really significant case, i. e., the case of capital which is being employed productively in the popular meaning of the

term, e. g., the raw materials, engines, machinery, etc., of a chair factory. Is it proper to impute any portion of the product of such a factory to the capital invested, *as capital,* i. e., as something different from the labor necessary to produce that capital? Thus, to use a highly artificial example, let us suppose that a certain chair factory turns out each month 70,000 chairs, of which number 20,000 become in effect the wages of current labor, 40,000 become in effect the wages of past labor embodied in the materials, engines, machines, etc., while 10,000 become the return to the capitalist.—it being assumed that the landlord and the entrepreneur as such get nothing; question: Are the 10,000 chairs which go to the capitalist as such properly credited to said capitalist as in some sense his product, or, in strict scientific accuracy, must they be credited to the past labor involved as its product, even though for some other good reason they ought to become the share of the capitalist? I hardly need say that, consistently with our previous contentions, we can not avoid answering that they must be credited to the capitalist as his product. Our reasons for this conclusion are best brought out in a series of formal propositions.

(1) Even if capitalistic production, as contrasted with non-capitalistic, must be conceived as involving merely a different method of utilizing labor, yet the employment of this more efficient method involves *conscious choice,*—it does not go as a matter of course.

(2) The choice of the capitalistic method involves the fulfilment of a condition—having *power to wait*—which can be fulfilled by laborers only to a very small degree.

(3) The supplying of this necessary condition can, however, be undertaken by persons other than laborers, and so the supply of power to wait, and therefore the extent to which the more efficient capitalistic method can be employed, can be influenced by persons other than laborers. In consequence, the power to enable producers to employ said methods becomes an ordinary economic good, a good distinguishable from other factors and having a price.

(4) The volume of this additional factor in production—waiting power—is *limited,* and *so limited that in many cases producers are obliged to forego the employment of methods which would be more efficient than those they do employ.*

(5) Under these conditions, producers are bound to feel that, even in the least important case where it is used, the power to choose the more capitalistic method is really important to them, and feeling this they must credit to it some portion of the product; since otherwise they might easily make the mistake of

using it for some less important purpose,—for producing some submarginal product. That is, capital as capital,—capital as waiting power in distinction from capital as the result of labor,—must be credited with a part of the joint product,—is, then, truly productive.

ILLUSTRATIVE PROBLEMS.

1. "That capital is productive has often been questioned, but no one would deny that tools and other materials of production are useful; yet these two propositions mean exactly the same when correctly understood."

Show that those persons who object to calling capital productive would hardly be satisfied with the above proof. (For the use which the author quoted made of the productivity of capital, his conception of productivity is all right enough; but it is not the conception of those whom he affects to answer.)

2. Suppose that a fisherman could catch 21 fish a day without the aid of a net or boat or any other form of capital; that to make a net would cost him thirty days' labor; and that it would last only thirty days.

(a) What is the smallest number of fish which the net must enable him to catch each day in order to justify our saying in this case that capital as capital is productive?

(b) Supposing that the fisherman catches with the aid of the net 200 fish a day, what is the maximum productivity which could be credited to the capital as capital.

(c) Under what circumstances would that maximum tend to be so credited to capital?

(d) Supposing that only 1000 fish were actually credited to the net as its product, how would you explain the fact?

(e) Can you imagine a condition of things under which no part of the catch would be credited to the net?

3. In order that we should impute productivity to capital, is it necessary that some part of the capital supplied should have a cost of abstinence or waiting?

4. It is usual to say that even goods ready for consumption, e.g., a loaf of bread, are capital *so long as they are in the hands of the producers or dealers.*

(a) Try to show that such a way of looking at the matter is reasonable.

(b) Is there any interest present in such a case?

(c) Can such capital properly be described as productive?

4. Does the Return to Capital Submit Itself to the Productivity or Service-Value Principle?

Our affirmative answer to the previous question almost involves the same one here. Still it might be argued that the peculiar character of the element under consideration renders

less likely our successful isolation of its share in the joint product, even if one admits that it has such a share. An engine is capital, or anyhow capital goods; but we *do not mean* by the contribution of the engine *all* its contribution. The larger part of that contribution is to be credited to the labor spent in producing the engine. Here we are concerned only with the part of the whole contribution imputable to the waiting power embodied in the engine. To expect entrepreneurs to isolate this would seem to be attributing to them quite exceptional powers of analysis as well as exceptional capacity to trace the working of intermingled forces. But all this is a bogey which need not frighten any one. (a) As already fully explained in Section G, Chapter IX, the process whereby each factor in production is assured a price expressing its marginal contribution is an *automatic* process involving comparatively little insight on the part of entrepreneurs. (b) But, in reality, the case of waiting power offers in actual practice no greater difficulties than other factors. To the entrepreneur, waiting power presents itself as a thing which he buys in isolation on the open market; i.e., as *the right to use some other man's money.* When he is considering whether or not it will pay him to make his methods more capitalistic—to use a larger proportion of congealed labor, a smaller one of current labor—the answer turns on one very simple matter, *the rate of interest.* It is, of course, true that, if an entrepreneur puts $10,000 worth of labor into the improving of his plant, this procedure must cost him, not only the $500 interest on the money, but also the $10,000 expended for the labor, and, so, surely the returns from the business must be adequate to cover the $10,000 as well as the $500. But, then, this is no concern of the interest problem. That problem has to do only with the *choice between two methods* of utilizing the $10,000 worth of labor; the direct and the roundabout. The cost of the labor is in either case $10,000; but the cost of the power to choose the roundabout instead of the direct method is only $500. In the actual world, accordingly, the task of ascertaining whether waiting power is worth to the entrepreneur what it costs him offers no greater difficulties than the same task in the case of labor. We conclude, then, that the reasoning which was employed by Section A, Chapter X, to show that the market automatically isolates the marginal contribution of each factor and assures to that factor a corresponding price, finds no

peculiar difficulties in dealing with the case of capital and interest.

5. Does the Return to Capital Submit Itself to the Disutility Principle?

That there is a disutility or sacrifice involved in supplying capital has already been argued more than once, and would seem to need little more comment. It may be that we shall have to relinquish altogether the earlier doctrine that in *abstinence* we have a cost coordinate with labor, and accept instead the contention of Boehm that the capitalist's sacrifice consists, not in an increased cost, but rather in a diminished reward for incurring the original cost. But even so, we have an added sacrifice the making of which is necessary if we would pursue capitalistic methods. The supplying of capital, therefore, involves a disutility or sacrifice.

The question still remains, however, as to whether there is any such connection between the disutility cost of capital and the market price of its use—the rate of interest—that said price must express the marginal disutility involved in supplying the capital. Doubtless we must admit that a negative answer is possible. The volume of accumulation is unquestionably influenced by other conditions than the rate of interest. For example, some persons are in a position to spare from the present without appreciable sacrifice while, at the same time, they are anxious to provide a fund for the future. Such persons would accumulate capital even if they were obliged to pay for the privilege of doing so. It is, therefore, conceivable that the amount of capital actually supplied to the market is not influenced in any substantial degree by a regard to the interest paid. If not strictly a fixed-output good, it would be one, the output of which would have its fluctuations determined only through the power of forces other than cost. The price of its use, therefore, would not have to conform in any degree to the sacrifice involved.

But, while such a state of things as that just described is conceivable, its actual existence seems in the highest degree improbable. There is one type of accumulation, certainly, which is motived by considerations of direct economic gain. I mean the getting together a small sum to make a start in business or speculation. Doubtless we are not here dealing with pure in-

terest—the *profit* expected is the more important item. Still the case must of course involve the interest problem; since the entrepreneur who puts his own capital into the business can not help performing the *waiting* function of the capitalist as well as the responsibility-taking function. Now, it can hardly be doubted that every year a large amount of capital comes into existence in this way; and it is hard to believe that it plays no part in determining the rate of interest. But, finally, it seems impossible to believe that the accumulating of that portion of capital which is devoted to earning interest only is not materially influenced by the immediate reward in the shape of interest. Surely there must be not a few people in such a position that they naturally say: The rate of interest has fallen so low that it really is not worth my while to say any more; I would better enjoy the present. If so, their decision for or against further saving must surely change the volume of capital sufficiently to modify its price. Putting the matter in a still different way, can it be seriously doubted that a fall in the rate of interest to zero would diminish the stream of new capital, or that a rise to ten per cent would increase that stream? If not, then we must say that the price of the use of capital must tend to express the marginal disutility of supplying it.

ILLUSTRATIVE PROBLEMS.

1. "It is absurd to call a course of action which is deliberately chosen as preferable to its opposite, a sacrifice. When the capitalist gives up a present good in order to gain a future one, *by that very action* he shows that he is not making a sacrifice, i.e., he shows that he *prefers* the future good to the present one."

Prove by similar reasoning that labor is not a sacrifice cost.

2. "The old-fashioned notion that capital is built out of savings has little or no application under our regime of corporate organization. What happens nowadays is that the corporation simply puts some portion of its huge earnings into improvements such as buildings, machinery, side-tracks, etc.; so that saving is no longer required."

(a) Show that the modern method as expressed in the second sentence involves no essential change in procedure.

(b) Show that this modern procedure may involve, probably does involve, not a few cases of really onerous saving.

6. The Rate of Interest and the Quantity of Money.

A very persistent and troublesome popular fallacy makes the rate of interest to vary inversely as the quantity of money.

This fallacy seems to spring from a confusing of money and capital. Such a confusing is not, perhaps, so very unnatural in view of the fact that the *immediate* form in which the use of capital is marketed is a fund of money or its equivalent, bank credit. In fact so fully is this true that, in the long run and supposing no tinkering with the money stock, we may quite safely take as our guide to the interest relations prevailing among the real capital goods, the market for mere money capital. But this is only because in the long run those interest relations prevailing among the real capital goods find full expression in the market for money capital. It is surely in the demand for and the supply of engines, machines, lumber, etc., rather than in the demand for and the supply of mere money that we should look for the *more ultimate* causes determinative of interest.

Principle. *In the long run, the rate of interest must be determined in substantial independence of the quantity of money.*

Argument. A. In General. What the borrower really wants is not money but goods,—engines, cars, rails, labor, etc. It is surely foolish to expect that putting out more coin or more paper money will make the real things, engines, cars, etc., cheaper to borrowers, or, *vice versa,* that withdrawing money will make those things dearer.

B. More Specifically. If we suppose the rate of interest to be lowered at first by the increase of money, the natural working of things will soon reverse the movement. (1) The lower rate will lead to extensive borrowing and buying of goods. (2) This will raise the prices of goods; since they have not increased though the money has. (3) This will compel borrowers to borrow *more* money in order to get the same amount of goods. (4) This will raise the rate of interest back to its old place.*

But, while in the long run we can not expect to influence materially the rate of interest (discount) by altering the quantity of money in circulation, we can for brief periods accomplish the result named. In fact governments and powerful banks at times consider it one of their functions to manipulate the money stock for the express purpose of raising or lowering

*In fact, it is generally held that, when the stock of money is increasing, the expected fall in its value—rise in prices—will cause lenders to hold back for a higher rate of interest in order to insure themselves against loss on the principal. Argued fully in Fisher's Appreciation and Interest.

the rate of discount. Thus, the Bank of England has in several instances contracted the circulation of London in order to force on the market a higher rate. Now, the possibility of bringing about such results in the way indicated rests upon the following

Principle. *For short periods (a few weeks or months), the rate of discount (interest) tends to equal that rate which expresses the marginal utility of the stock of money capital without much regard to the marginal utility of goods capital or the disutility of saving.*

Argument A. The short-time rate adjusts itself to the marginal utility of *money* capital without much regard to goods capital, because short-time loans largely connect themselves with the need for money, not to invest productively, but to *meet money obligations.* Here the demand is emphatically for *money itself,* not something which money will buy.

B. The short-time rate adjusts itself to the marginal *utility* of money capital with little regard to the *disutility* of saving. This is simply the old case of short-time normals being determined without respect to cost of production. During a series of years, the price of wheat tends to equal its marginal cost of production. But, between two harvests, its price tends to be one which expresses the marginal utility of the existing stock.

ILLUSTRATIVE PROBLEMS.

1. The law of 1900 for the better protection of the gold standard provided among other things that under certain circumstances treasury notes (greenbacks) which have been redeemed shall not be paid out even in exchange for gold, but shall be hoarded, thus contracting the total currency. This was doubtless intended to protect the Treasury when a heavy gold export was in progress; and, whether intended or not, it will doubtless tend to check such a gold export. Argue for the correctness of the statement after the semi-colon.

2. At present the Imperial Bank of Germany has the unconditional right to issue only 450 millions of uncovered (not backed by an equal amount of gold) notes; but, by paying a tax of 5 per cent on any excess over said amount, it may expand the issue indefinitely. It is believed that this power can be used, and is used, to keep the rate of discount much more uniform than it would naturally be. Show that we can reasonably look for such a result.

7. The Rate of Interest and Risk.

It is a familiar fact that at any one time the current rate

of interest on capital used for the same general purpose differs greatly in different places, say Ann Arbor and Spokane, and that even in the same place at the same time it perhaps differs widely when the capital involved is put to different uses. The chief explanation of these differences is doubtless inequality in the matter of risk. The excess over, say, four per cent in a given time and place may be conceived as an insurance premium, a contribution to the fund necessary to cover losses from bad debtors, or perhaps as a payment necessary to overcome the natural indisposition of the lender to take chances. If we understand by "gross interest" the amount actually paid and by "pure interest" the rate paid to cover the simple use of capital or waiting power, we may lay down the following principle, which, though obvious and familiar, is of great importance and, unfortunately, is often overlooked.

Principle. *The amount by which gross interest in any particular case exceeds pure interest tends to vary roughly as the risk involved.*

ILLUSTRATIVE PROBLEMS.

1. Show that usury laws would tend to raise the rate of interest.

2. Is it reasonable to accept as true the statements of a bond agent who tells you that the bond which he has for sale is a gilt-edged one—i.e., that is absolutely secure—although it pays 7 per cent interest?

3. Give examples of some kinds of laws which you think would naturally cause the rate of interest to rise in a given state or country.

4. How do you explain the fact that the rate of interest on ordinary loans will often be 6 or 7 per cent in Detroit, while at the same time, it is only 4 or 5 per cent in New York City; although an impartial observer would hold that there is really no greater absolute risk in the one case than in the other?

Section H. Special Consideration of Profits.

1. The Nature of Profits.

Profits, as the term is frequently used by the general public, include the *whole* net return to the responsible owner of a business, i.e., the whole return after money outlay has been deducted from money receipts. This whole return, which we might call Gross Profits, usually includes at least three elements, (1) wages of some sort, principally for management, (2) interest

on capital invested, and (3) a remuneration for *taking the responsibility* of production, and *making certain final decisions which necessarily fall to the owner.* The first element has come to be eliminated from profits even in the popular sense of the term because of the great extension of the corporate form of business in which the work of management is turned over to hired officials. The second element, interest, is still commonly included. That is, stockholders in a concern paying seven per cent dividends would commonly think of the business as yielding seven per cent profit, rather than four per cent interest plus three per cent profit. In this sense, profit is contrasted with interest in being the return to the capitalist who bears the whole burden of ownership, waiting plus responsibility-taking; while interest is the return to the capitalist who assumes only one part of the burden, waiting. In economics, however, we often find it convenient to limit profits to the third element, the taking of responsibility and making final decisions. From this point of view, profits in the case above would be only three per cent, i.e., the difference between what the capital would have received if lent to the company and what it actually did receive as invested in the business. Profit, in this sense, we will call Pure Profits or Profits Proper.

(1) Pure Profits involve an infinitestimal element of *wages,* in that the owner must make certain final decisions. But in practice this tends to become negligible. (2) Pure profits, as the return for responsibility-taking, involves something more than a remuneration for assuming economic risk; for assuming economic risk is not the only disutility or sacrifice connected with the taking of responsibility. But no doubt risk-bearing is the chief element in the case.

That risk for the bearing of which profits are paid must not be confused with the regularly recurring—calculable—losses of a business. Such losses simply increase the outlay for labor and capital goods. The remuneration received by the entrepreneur because of such losses would never be thought of as profits, but only as replacing of costs. The risk for which profits are paid is the risk of losses which cannot be recouped in the experience of the individual *entreprenеur,*—risks of total failure, or some loss almost as great. Compare the breakage of bottles in the brewery business with the chance that temperance legislation will destroy the business. The former is covered by

greater outlay. The latter is a not-to-be-compensated loss. It cannot be met by any fund, unless brewers co-operate to insure one another, i.e., unless competition is replaced by consolidation. Here we have a *true risk*,—a case where there is real danger of real loss. To induce men to assume such a risk, they must be paid something, not of course enough to cover the loss if the risk should become a certainty, but enough to *move their wills*, to induce them to assume the risk. It is thus evident that profits must not be conceived as a contribution to an insurance fund from which losses are covered. There is no such fund; the losses are not covered.

Under Socialism, the sort of risk now remunerated by profits would in the main be covered by an insurance fund; since the state, having a complete monopoly of production, would pool in its own hands all risks, and, as well, all chances of occasional gain. The risk cost of production, therefore, would become simply *more capital and labor* cost, instead of being, as now, the price of the psychological disutility of undertaking risks. (Perhaps the latter element would not be wholly eliminated in the case of long time enterprises undertaken for future generations.) It is probable that under socialism the state would charge each commodity with the average cost of the whole output of that commodity, including successful and unsuccessful branches of the industry involved. Profits, as an element of cost, would not therefore be eliminated under socialism, but would appear in another guise.

From the preceding analysis it results that, under the present order, profits may be much larger or much smaller than the insurance fund necessary to cover the real economic risk. It seems probable that, where risk is reduced to a minimum, profits are larger than the necessary insurance fund; but, where risk is very great, profits are much smaller than the necessary insurance fund.

2. The Kinds of Profits.

Profits, we hardly need say, offer much greater diversity than any other of the regular economic incomes. In fact one often questions the propriety of treating them under a common head. Still they all have the common mark of being received by the person or persons who take final responsibility. and they all, in greater or less degree, connect themselves with

the most conspicuous element in responsibility-bearing, i.e., risk-taking. Their differences, however, are so great that we are almost obliged to distinguish them in any full treatment of the conditions by which they are determined. We here distinguish four chief sorts.

(a) *Ordinary* Profits. By these we mean the profits realized in well-established lines of business wherein no considerable amount of risk is involved. Ordinary profits, again, may be subdivided into Necessary and Differential. By the former we mean profits which must be paid even to the marginal employer. By differential profits we mean profits received by entrepreneurs of grades superior to the marginal one, in excess of the profits paid to the latter.

Notes. (1) A number of prominent economists hold that profits tend to disappear in such industries as those here considered,—said profits being eliminated by the competition of entrepreneurs. We will give some reasons for the contrary opinion a little later.

(2) By the *marginal* entrepreneur we mean, not the least efficient one *actually producing,* but rather the least efficient one of those actually producing who *under normal conditions will continue in the business and will be succeeded by others who voluntarily take his place.* The purpose of this statement is to exclude from consideration a type of entrepreneur who must always be thought of as an anomaly from the study of whom no valid principle for normal conditions can be derived. The type in question is the man who, though failing to make profits, interest, or wages, though even losing little by little his very capital, keeps on in the business because he has no other choice. The facts with respect to such an entrepreneur are of no scientific significance in studying the principles of price or those which govern distribution.

(3) It is somewhat doubtful whether we ought to recognize the kind of profits above designated *differential;* for these, being derived from the superior efficiency of one entrepreneur as compared with another, seem to be *wages.* This is quite correct as respects a large part of what is commonly thought of as differential profits. Still, it is probably our duty to retain the category. As already indicated above (page 376), we can never completely eliminate from the function of the entrepreneur the element of management;—he must share in the making of certain ultimate decisions. In consequence, there will tend to be a residuum of differential profits, even if we make quite universal the corporation practice of turning over the function of management to hired servants.

(b) A second sort of profits is naturally designated *Enterprise Profits.* These are the profits reaped by the *initiators* of

industrial enterprises. They almost necessarily contain a monopolistic element. In the case of patent rights, this is secured to the entrepreneur by the action of the public. Oftener the tincture of monopoly comes from the fact that the development of competition takes time, and, so, the pioneer in a given field has a quasi-monopoly for a brief period after success becomes assured.

In the case of enterprise profits, it is more difficult than ordinarily to eliminate the element of wages. As a usual thing, some of the men who initiate an enterprise, for a time anyhow, perform labor services in connection with it, e.g., promoting financing, etc., and, in performing these functions, often do not work for defined salaries or commissions. Even if a defined commission is assured them, it is usually in the form of shares in the business, and, so, its real amount is conditioned upon the success or failure of the enterprise and, hence, is conditioned more or less fully on the efficiency or inefficiency of the receiver himself.

(c) *Speculative* Profits scarcely need any definition beyond their name. They are seen when men consciously speculate, i.e., consciously deal in goods for the sole purpose of reaping the gains which may arise from changes in price.

(d) *Accidental* Profits arise when some quite unforeseen, not-to-be-anticipated condition increases the income-producing power of a given property, e.g., the decision of some important semi-public institution to establish its quarters in a different part of a great city. This naturally increases the demand for neighboring sites at greatly increased rents.

(e) *Monopoly* Profits are obviously profits received by the owners of any monopolistic business.

3. Do Profits Submit to the Productivity or Service-Value Principle?

It can not be denied that, of all the regular economic shares, profits are decidedly the most troublesome when we try to place them under the productivity principle when rigidly interpreted. Of course, there is no difficulty showing that the receivers of profits as a class perform a service,—produce something. In some sense, anyhow, profits are correlated to a utility produced. Further, it seems almost equally certain that profits are in some

rough way *proportioned* to the utility rendered. Thus, all must admit that those persons who initiate a commercially dubious, but socially important, enterprise perform a greater service than those who carry on the same in later years when success is assured. But, granting that in the case of profits there is a rough correspondence between the reward and the service rendered, it does not seem possible to affirm even the degree of correspondence at this point which we believe exists in the case of wages and interest. Accordingly, some specific statements bearing on this special case of profits seem called for.

(a) In the case of *accidental* profits, the correspondence between service rendered, and reward received is obviously very slight. Profits do *not* in this case tend to express the marginal significance of the receiver's contribution.

(b) In the case of *monopoly* profits, there is doubtless fairly close correspondence between the reward and the marginal significance of the supply of service *actually* rendered, but not between the reward and the marginal significance of the supply of service *which would naturally be rendered.* The monopolist by limiting the output of his product raises its marginal utility, and so its price, above the marginal utility which said product would naturally have. In doing this, he obviously raises his own profits above the amount which would express the marginal utility of his services, were no limitation set on their output

To the above account of this case of monopoly, however, one qualification must be added. The monopoly which temporarily exists may have been *anticipated,* and hence may have been one of the conditions which induced capitalists to undertake the industry in question when they would not otherwise have done so. In such case, we may say the monopolistic output is the *natural* one and so the case comes fully under the service-value principle. Cases of this sort are supplied by the legal monopoly of patents, copyrights and franchises, and by the quasi-monopoly of new enterprises. Here the extra profit does not correspond merely to the higher valuation by supra-marginal buyers of the service rendered, but also to the additional service. For, surely, there is an additional service when men undertake to try out the feasibility of a new enterprise,—giving the public an opportunity to find out the real utility of the service or commodity said enterprise supplies.

In spite of this qualification of our first statements, the student must not suppose that economists are disposed to affirm the service-value principle for monopoly. In general, the presence of monopoly at any point more or less seriously interferes with the realization of said principle; and, assuming for the moment that said principle has a valid claim to the place of legitimate ruler for any economic order, then monopoly, if necessary or permitted, ought to be regulated or controlled in the public interest.

(c) The case of Enterprise Profits has been more or less anticipated in the preceding discussion of monopoly profits. Such profits have not a little resemblance to *prizes*. Many persons get nothing; a few get large rewards. Under these conditions, we can scarcely expect profits to express with great precision the contribution of the profit-receiver. Yet we should not, on the other hand, imagine that the two are entirely divorced. Opportunities for exploiting novel enterprises are constantly arising; competition for such opportunities is kept fairly brisk; the goods produced must command prices fairly expressing their marginal utility; the marginal contributions of the other factors are at the same time being more or less fully determined in other fields; and it seems not unreasonable to assume that the residuum of product—which constitutes profits—is properly credited to the entrepreneur as his contribution.

(d) That Ordinary Profits of the necessary sort, if they exist at all, tend to express the marginal contribution of the entrepreneurs does not seem to need additional discussion Here the elements of change and uncertainty are reduced to a minimum; so that the economic processes which tend automatically to secure each factor a share representing its contribution to the joint product, meet little hindrance in bringing about that result.

(e) The Differential variety of Ordinary Profits will surely express with considerable precision the corresponding contribution of the entrepreneur, since by its very nature it grows out of the superior productivity of that entrepreneur. This is seen by analyzing the process by which such profit arises. The price of the product involved is fixed at cost (including necessary profits) to the marginal entrepreneurs. A higher grade entrepreneur can now get differential profits only by reducing cost per unit and so getting a *bigger surplus* out of a price already

fixed. Now this condition of reducing cost he fulfils because for some reason he is more efficient, creates more utility; and the size of the surplus thus produced will depend on the degree to which he is more efficient, i. e., the difference between him and the marginal entrepreneur *in respect to productivity.*

4. Do Profits Submit to the Disutility Principle?

It is obvious that a negative answer is necessary in the case of Accidental and Monopoly profits. The same answer seems natural in the case of Differential profits, though this is not so certain. If disutility comes into any case of value, it is because the failure of value to cover that disutility causes production to fall off, and so compels price to rise till said disutility is covered. If the usual analysis which finds price-determining disutilities only in the case of marginal producers, is correct, differential profits would be a sort of producers' rent,—a surplus usually exceeding the corresponding disutility.*

Passing to the case of Necessary profits, it seems certain that these must express with fair precision the marginal disutility involved in supplying the entrepreneur service. (1) The demand of the public must insure for the product involved a price high enough to cover the disutility undergone by the entrepreneur; since otherwise production will cease, supply will fall off, and so price will rise. (2) The competition of entrepreneurs will keep price from going higher than the above point; since their numbers can be recruited at all times from those capitalists who merely furnish waiting power, i.e., *lend* their capital rather than invest it.

In the case of Enterprise profits, also, correspondence between the disutility involved and its reward seem necessary from the same reasoning, though here the correspondence is less precise.

Note. It does not seem a valid objection to the application of the disutility principle to this case of enterprise profits to say that there is *too much chance* involved in these cases to insure any particular result;—the price of the product may fail to cover, not only the peculiar disutility of the entrepreneur, but also even the ordinary outlay for material, wages, etc.; while, on the other hand, it may cover all that outlay and give a surplus large enough to insure almost any conceivable risk

*It is possible that, in respect to the particular disutility under consideration—responsibility-taking—the more efficient entrepreneur is really the marginal one, i. e., the one to whom disutility is greatest. In that case our reasoning could not stand.

several times over. This reasoning quite fails to recognize the real nature of the responsibility-taking disutility. That disutility is not expressed by the term "insure." According to that theory risk comes in, not as a chance of loss to be covered by insurance, but as a chance of loss not to be covered at all. The taking of such chances involves a disutility. To induce men to incur that disutility, a prize, or bonus, of larger or smaller magnitude, must be attainable in case of success. The size of that bonus is roughly proportioned to the risk, though the unit of variation is very different for different races; and, having been fixed, it must be covered in the price of the product.

5. Do Profits tend to Disappear?

A rather noteworthy fact in recent economic discussion, particularly in this country, is the manifestation of a disposition to hold that profits—pure profits—tend to disappear. The argument for this contention moves along two general lines. (a) It is affirmed that pure profits, assuming them to be paid for risk-taking, will necessarily disappear with the elimination of risk from industrial affairs; and such elimination is steadily proceeding through the increase of knowledge, forethought, invention, etc. (b) Secondly, it is claimed that the disutilities correlated to profits are disutilities which plenty of men, particularly in America, are quite willing to assume without reference to an economic reward. In support of this contention its advocates bring forward the consideration that the desire for power, the craving for better social standing, the gambling spirit which eagerly improves the opportunity to take chances,—all these unite to make men who have the necessary capital and capacity willing to undertake the responsibilities of production, even though they expect to get nothing more than ordinary interest on their capital and ordinary wages for their labor contribution.

In reply to the first of the above arguments, it seems sufficient to declare that the complete disappearance of risk, chance, uncertainty from industrial affairs, if not quite impossible, is certainly so remote that it can not properly be made the basis for any affirmations with respect to the present order. Some centuries hence we may have become able to predict the weather for a year in advance with absolute precision, but we shall still have to reckon with the uncertainties due to human folly and caprice.

The second line of argument is less easy to answer, yet will

not, I think, carry conviction to most persons. The first two of the three considerations given above as making men willing to assume the responsibilities of production, apply to hardly more than a small minority of the entrepreneur class of our day,—the small individual or partnership entrepreneur who combines in himself the functions of capitalist, manager, and entrepreneur; for, under the corporate organization of industry, power goes to salaried officials, and the social position of bondholders is surely as good as that of stockholders, assuming their investments to be equal. But, if there is any considerable section of the entrepreneur class with whom these non-economic motives would not suffice,—who would insist on a greater economic return for taking responsibility than for simply lending their capital—then, profits would surely have to be paid.

The third of the considerations brought forward to show that men will undertake the responsibilities of the entrepreneur's position without an economic reward,—viz., the gambler's desire to take risks—contains the old confusion of ideas which has already been commented on more than once. It is undoubtedly true that men are so ready to take risks, when a possible great prize is in sight, that they do not *as a whole class*, have to be remunerated for taking that risk. In other words, if all the copper producers of the world spend 500 million dollars worth of labor and capital getting out the product, it is not necessary that said product should be worth 500 millions *plus* something for the risks taken. On the contrary, that product will probably be worth considerably less than its labor and capital cost, say 400 millions. But all this is beside the point. The real issue concerns, not the *whole* class of entrepreneurs interested, but only those upon whose conduct the output actually supplied depends, i. e., the successful entrepreneurs. Do these persons have to get profits? Surely they do, else there would not be this gambler's eagerness to assume the risks of the business. The proper test for determining whether profits of the sort under consideration, i. e., a remuneration for risk-taking, really exist, is this: Does society have to pay a higher price for a particular commodity or service than it would have to pay if risk were eliminated? Surely there can be but one answer to that question, viz., the affirmative one.

6. Profits as Affected by Changes in the Value of Money.

In an earlier discussion, it was brought out that the value of money itself may change and, so, general changes in prices may take place without reference to the conditions ordinarily governing the value of each commodity. Thus, under the paper money standard of civil war times, there was a general rise of prices, i. e., a fall in money, in the United States. So, for many years following 1873 there was a general, though gradual, fall in prices, i. e., a rise in money, affecting most or all of the Western nations. Much more rapid ups and downs mark the periods immediately preceding and following commercial crises or panics. There has naturally been much debate as to how far such movements influence distribution. At this point, our particular interest in these changes respects their influence on profits. At first thought, perhaps, the student is inclined to say that of course such changes influence profits. If a merchant has paid $100,000 for a stock of goods, and, because of a universal and simultaneous fall in prices, their value declines to $60,000, how can anyone deny that the merchant is losing $40,000? This sounds plausible. but is in fact a very evident fallacy, though a common one. A universal and simultaneous fall in prices of 40 per cent raises the buying power of $60,000 till it is just as great as was that of $100,000. Supposing no other change in conditions to occur, the merchant in question neither gains nor loses as a result of the fall in prices. But, while the sort of price change above supposed, i. e., a price change wherein all prices, including those of labor, move up or down simultaneously, has of itself no influence on profits, the general price changes of actual life probably do, in most cases, have some influence.

(a) In so far as entrepreneurs are debtors, they gain by a general rise in prices but lose by a general fall. The money significance of their debts does not change with prices, but that of their product does.

(b) It is probable that general price movements which take place with considerable rapidity affect profits to a considerable degree. This is because such movements are felt by commodities more promptly than by labor services and so raise or lower returns more than they raise or lower costs.

Section I. **Special Consideration of Rent.**

1. The General Nature of Rent has, perhaps, been sufficiently emphasized in earlier connections. As generally understood by

economists, it is the return which accrues to the owner of land conceived as independent of improvements, though it is admitted that, in some cases, separation is impossible,—the improvements necessarily sharing the economic fate of the land.

2. The question whether land submits itself to the Service-value or Productivity principle is quickly answered in the affirmative Land, being a factor the supplying of which is not, generally speaking, conditioned on man's choice, is a fixed-supply good, and hence the process whereby each factor in joint production is automatically given a price expressing its marginal significance, would, in this case, work itself out with exceptional case. The result is, further, more fully assured because of conditions in large measure peculiar to land. (a) First, land naturally grades itself into classes shading, by almost insensible steps, from very high to very low efficiency. (b) Secondly, competition among these different classes is assured, even when the uses to which they are put are very diverse, from the fact that, while not all the members of one class can be utilized for the purposes to which the adjacent classes are devoted, yet enough can be so utilized to keep these effectively competing. (Compare the case of two large reservoirs with a small channel connecting them,—will the water in them have one level? Read Seager, pp. 206-211.) (c) Up to the present, anyhow, there are not a few inferior grades of land which are not yet put to use, because human need has not yet compelled their utilization. Under these conditions, there will naturally be some lands to which, though they are put to use, no part of the product is credited;—other pieces as good or only slightly inferior being unused and so available to replace these, the case is lacking in that *scarcity* which is necessary to induce us to impute any portion of the product to a particular factor. (See note on page 473. At the same time, no rent will be paid for these lands; since the competition of the lands which are not used at all would hinder the owner of the marginal land from getting rent for his. But it is obvious that, if a certain amount of labor and capital will get, say, 11 bushels of wheat in a combination wherein the 11 bushels are all credited to the labor and capital while the same amount of labor and capital can get 18 bushels from another piece of land, the 7 bushels extra will be credited to the land as its product. At the same time, it is

plain that the competition of tenants to get control of this 18-bushel piece will put the 7-bushel difference and no more into the hands of the land-owner as rent. Thus, we see that the portion of the output which is naturally credited to the land as its product and the portion which inevitably goes to the land-owner as rent are the very same amount. That is, rent necessarily corresponds with great precision to the product which the rent-bearing land gives off.

3. Does Rent submit itself to the Disutility principle? This question presents greater difficulties than our last one. If it means: Must rent be what it is because the marginal disutility of supplying land uses is what it is?, our answer must of course be in the negative. As already explained, the disutilities involved in being a rent-receiver, i. e., a land owner, are *derivative,* not original. They are what they are because the income is what it is, not the reverse. The rent of land does not have to adjust itself to the original disutility of supplying land. But, if we mean by our original question merely this: Must the disutilities involved in being a rent-receiver, i. e., a land owner, and the rent received be so related that said disutilities are, broadly speaking, expressed by said rent?, the answer is surely an affirmative and one not greatly qualified. Under normal conditions the market price of any piece of ground will approximately equal the capitalization of its net income; in consequence, persons desiring to become rent-receivers will be obliged to invest their full capital in said land just as if it were a producible commodity; and so gaining the position of a rent-receiver will normally involve assuming the ordinary capitalistic disutilities, abstinence, waiting, and risk-taking. Further, this process of capitalizing the income of land will almost certainly work itself out in such a way that the income pretty closely expresses the disutilities created. This is of course inevitable in cases where the element of change is very small. That is, when the disutilities are reduced to abstinence and waiting (if these should be distinguished), they are very precisely expressed in the income received.* In those cases, however, where much change is involved, the correspondence of income and disutility is of course much less perfect. But it is by no means wanting even here. If the prospects of change do not involve serious uncertainty, the

*Of course this applies only on condition that the land has changed hands by purchase since the existing rent came to prevail.

case is little different from an unchanging one. A pretty certain prospect of increasing income will cause a corresponding rise in the capitalization, and *vice versa*. Where there is much uncertainty and, so, much risk, this fact will be treated as a diminution of the net income, and, in consequence, the capitalization and, so, the disutility assumed will be lowered.

Section J. **Real vs. Apparent Incomes.**

Up to this point in our discussion of incomes, we have ignored altogether the possibility of a discrepancy between the seeming income and the real one. But a very little reflection will show that there is such a possibility. In the great majority of cases, apparent incomes are in the form of money. But the buying power of money may be, and surely is, very different in different places and in the same place at different times. Further, to get the really effective income which a man enjoys, as such words are commonly understood, various other additions or deductions have to be made, even if we have made allowance for the differences in the purchasing power of money. Accordingly, it seems necessary to call attention to certain discrepancies between apparent and real incomes.

1. Income as Affected by Prices.

(a) Any cause which tends to raise the prices of particular goods tends thereby to lower the incomes of all consumers of such goods other than those consumers who are also producers of said goods.

One of the most familiar applications of this is the case of monopoly. The greatest significance of monopoly as modifying distribution is in that, by raising prices, it reduces the volume of our real incomes, i.e., the sum of goods which we may enjoy. Another case illustrating how causes which affect the prices of particular goods lower real incomes, is the indirect tax which, by adding to the outlay of the producer, causes price to rise. A noteworthy feature of this case is the fact that a tax on imports makes a higher price, not only for the imported part of the goods consumed, but also for the part produced at home. Still another important cause which modifies real incomes by affecting particular prices is improvement in methods of production whereby costs and so prices are reduced.

(b) If for any cause there is a change in the general level

of prices, this fact is likely to modify more or less the real incomes of people.

Some pages back we pointed out that changes in the general price level are likely to affect favorably or unfavorably one sort of income,—profits. The process brought out in that case directly affects *money* income. But such changes in general prices may also modify real, as compared with money, incomes. A general rise in prices obviously lowers the buying power of a given money income. Now, if particular money incomes are absolutely or relatively fixed, the corresponding real income is reduced. The worst cases are those of annuitants, pension-receivers, and persons depending on contractual interest for their incomes. Next come the case of persons whose income consists of fees; for these, if not legally fixed, are anyhow slow to change. Salaried persons are next to suffer; for salaries as a rule change very slowly. The case of wage-earners is hardly less serious; since the rate of wages responds only with difficulty to changing conditions. Thus, the upward price movement consequent upon the paper money inflation of the American civil war reached its maximum for commodities in 1865, but for labor the date was 1872.

2. Incomes as Affected by Taxation.

It is evident that, if, after a man has come into possession of his money income, government either directly or indirectly takes from him some portion of that income, his final income of gratifications of the ordinary sort is thereby curtailed. This must not be understood as implying that payments to government are in no sense correlated to a real income to the taxpayer. The expenditures of government are surely of advantage to the citizen; and, for some purposes, the citizen ought to think of his contribution to that expenditure as a thoroughly legitimate and important part of his personal budget. Still, it is quite impossible to deny that we can not rationally describe payments to government as the purchase price of services rendered, in the sense that we use these terms when speaking of payments to the grocer or the drygoods dealer. It is quite impossible to form any rational theory of the ethics of present-day taxation except by recognizing that taxes constitute a contribution which it is our duty to make, and the government's duty to exact from us, in order that certain general, public,

ends may be accomplished,—ends in which it is often extremely difficult to trace the particular personal advantage of the taxpayer. For our present purpose, therefore, it seems legitimate to look on taxation as cutting down our real incomes.

Starting from this viewpoint, we should probably find that taxation tends to modify somewhat the distribution which would naturally result from the free, spontaneous working of economic forces, but that its influence would be smaller than at first thought one might expect. In fact, a large body of economists would be disposed to say that a system of taxation which continued substantially unchanged throughout long periods would have almost no modifying effect on distribution. Such a system would simply be one of the fundamental conditions under which the service-value principle would work itself out. But, however this may be, we all know that systems of taxation can not, and do not, remain unchanged for indefinite periods. Now, no one pretends that the shifting of taxes so as to bring about the same relative distribution as would have prevailed without them, is an easy matter which can be accomplished in a few months or anyhow in a very few years. Rather it may consume the life of a generation. This being the case, it is of importance to ascertain some of the effects on distribution which sooner or later will be felt, and, if desirable, guard against these. We will here call attention to only two or three considerations.

(a) It is usually admitted that indirect taxes, e.g., import duties and excises, if levied in such a way as to be greatly productive, fall relatively with greater weight on small incomes than on large ones.

(b) A general property tax affects the incomes of persons owning visible property much more than the incomes of owners of bonds, stocks, etc.

(c) A land tax of long standing does not constitute a burden on any private income, being in effect a rent-charge paid to the government as part owner of the land. (The present owner did not buy, and does not own, an exclusive property in the land.)

3. Effective or Consumptional Income as Contrasted with Absolute Income.

We have already noted various deductions which must be made from, or additions which must be made to, one's apparent income before we can know what the real income is. Another set of deductions or additions are suggested by setting

consumptional over against *absolute* income. When people speak with indignation of the excessive incomes of the very wealthy, they usually are directing their attention to the fact that people of wealth enjoy so much more than their neighbors of the good things of life, fine foods, beautiful furniture, automobiles, travel, etc. In short they have in mind their consumptional income,—what they consume, in the popular meaning of the word, i.e., for their immediate gratification. Now, it is hardly necessary to say that, when incomes are conceived this way, there is much less difference between those of the rich and poor than seems on the surface to exist. The man whose apparent income is, say, $100,000 consumes in the ordinary sense perhaps only $20,000 worth of goods, the remaining $80,000 being invested and devoted to further production. Of course this new investment will increase his absolute income. But what if it does? He very likely does not care to alter materially his habits of living. He, therefore, has no use for the increase except to invest it in turn. Thus, as respects his total of income, with the exception of $20,000 a year, the rich man in question may be conceived as a sort of steward for society at large, paid a good commission indeed, but after all only a steward. His income in the ordinary sense, his enjoyment of goods, is not 100 times that of the man who earns $1,000 and spends it all on every day consumption, but only 20 times.

The above discussion brings out the point that if we are trying to realize the real, effective difference in the incomes of the rich and the poor, we must for most purposes deduct from the incomes of the rich the part put into further production. As a complement to this point it is to be noted that, in order to realize just how great is the real, effective income of the poor, we must add a large number of gratuitous and semi-gratuitous goods which under modern conditions are supplied to them. Especially notable are the means of education and amusement which are furnished so liberally at public expense.

Section K. **Incomes as Affected by Non-Economic Forces.**

We have seen that incomes generally are determined by the laws of value or price, i.e., by economic forces. But no one doubts that other forces, custom, altruism, nepotism, fraud, etc., come into the case, and, indeed, play a very large part. Some

of these forces work to increase the inequality natural to a competitive order; others work to diminish that inequality.

Among the non-economic forces tending to diminish inequality, or, as most people would say, to improve on a strictly competitive order, we have all sorts of employers' philanthropies, profit-sharing, co-operation, a vast system of charities, large endowments to meet all sorts of needs, and so on.

Over against these, leading to an intensification of the inequalities natural to the present order, we have a great array of powerful forces, predatory competition, favoritism, breach of trust, nepotism, stock-jobbing, frauds of all kinds, and so on.

Section L. The System under which Possessions are Distributed.

It is evident that three of the four economic incomes, profits, interest, and rent, connect themselves with property,—are derived from property. It follows that back of the determination of incomes, immediately considered, must lie the distribution of property. We understand the theory of these incomes only in part, if we stop with the study of them as put off by land and capital. We ought to go deeper and *explain the distribution of ownership in land and capital.* At present it is out of the question for us to do this at all adequately; but a few comments seem to be demanded.

1. First, in so far as possessions are derived from one or more of the four regular incomes, and this covers not a little of the case still, it must be remembered that *large properties can be built up only through saving.* In this respect there has been no essential change from primitive times. Thrift, economy, is still the essential condition of great wealth, great possessions. With fortunes well started, thrift does not of course involve great privation. Nor was this ever the case; it is only the very beginnings of a fortune which involve such privation. But thrift, economy, keeping within one's income, must always be essential; for the arts of consumption have never failed substantially to keep pace with those of production. Wanton extravagance can never consist with the building of great fortunes.

Of all the regular sources of income, profits have in our day doubtless had the largest share in the creation of fortunes. This is using profits quite broadly to include all the gains which go to the people who assume the risks of ownership. Some of the

most important cases are (a) profits derived from the exploitation of stores of natural wealth, (b) profits from the exploitation of new inventions, (c) profits from monopolies, partial or complete, (d) profits from unearned increments, increases in values due to changes for which the owners of the properties in question are not responsible, and (e) profits from industrial reorganization.

2. In the second place, the *maintenance* of great fortunes must always depend in considerable measure on the practice of *thrift*. This, of course, does not mean serious privation of any sort, but only a firm adjustment of expenditure to income. Reckless extravagance can dissipate the greatest of fortunes. This fact has always been accounted a sufficient safeguard against the dangerous concentration of wealth made possible through inheritance. The extravagance of heirs, it is argued, can always be depended upon to dissipate extraordinary wealth in one or two generations. This generalization has probably been a great deal overstated. It would not be difficult to point out families which have retained wealth for several generations and bid fair to continue the experience.

Note. The ordinary view of the case seems to overlook one phase of this dissipation of fortunes which deserve comment. Doubtless the diminished inequality of fortune, the passage of a great productive property into abler hands, as well as other results of the supposed dissipation, are of real advantage to society. But it should not be forgotten that these have a cost. There is a real *squandering* of wealth, a reckless, wanton, consumption of society's resources, not a mere shifting of property rights. The spendthrift destroys as much wealth as that which he transfers to others, save in so far as he is cheated.

3. *Inheritance* always has played, and still plays, a very great part in determining the distribution of possessions. Obviously its significance is chiefly dependent on the particular laws and customs which obtain in any time and place. The general tendency of present day legislation is to diminish the part played by inheritance.

(a) In earlier times, *entail* was used to maintain an unequal distribution of property. Law, or custom as binding as law, prohibited the breaking up of estates by alienation through sale or gift.

(b) Where entail is no longer permitted, *settlement* may accomplish something like the same result; though recent legislation has provided for the practical nullification of such settlement.

(c) *Primogeniture,* exclusive inheritance by the oldest child, is still the order of things with the noble families of England and, of course, tends to perpetuate the existing inequalities more than would subdivision among several children.

(d) In contrast with entail, settlement, and primogeniture, the democratic ideal as represented by modern France insists on *equal division* among the children. This is no doubt a great improvement, assuming that the tendency toward inequality is undesirable.

(e) In our day the legislation which seems likely to modify most considerably the natural distribution of wealth is the *inheritance tax.* This has already been developed to a very considerable magnitude and is everywhere being carried further. In Great Britain, it amounts to nearly 10 per cent in the case of direct heirs and to about twice as much for the more remote collateral heirs

4. In the United States one of the most important sources of great fortunes is the *public—governmental—grant.* Under heading 1 above, it was said that profits derived from the exploitation of stores of natural wealth played a large part in building up fortunes. But the opportunity to obtain such profits obviously turns on the ownership or control of land and the latter in turn has largely been obtained through governmental munificence or folly in *granting* such land. *Here we have one of the greatest abuses in American industrial evolution. We have squandered the patrimony of many generations.* The *weakness* of government in a new and republican nation, a careless *overestimate* of our resources, *preoccupation* each with his own affairs,—these and other conditions have combined to make possible *a reckless profligacy in the disposition of our natural resources which future generations will find it hard to comprehend and still harder to forgive.*

It should doubtless be admitted that in some measure public liberality has been justified as part of the price of our extraordinarily rapid development.

5. There can be no doubt that *fraud* of varying kind and degree has been an important factor in determining the distribution of property, possessions. Here we have in mind, not the fraud which enlarges income and which would therefore make possible the enlargement of possessions, but rather the fraud which *directly* adds to possessions, e.g., getting control of valuable timber lands belonging to the state by illegal means. Under the preceding head, we noted the absurd liberality of

government in turning over public property of incalculable value to private persons for little or nothing. The evils of such a policy have been increased in no small degree by fraudulent practices. By the collusion of legislators and public officers, the patrimony of the state has been stolen on a gigantic scale.

Quite as notable, perhaps, has been the stealing of franchises yielding hundreds of millions.

Even in the lesser relations of ordinary business, fraud has played no inconsiderable part. Swindling of partners, freezing out weaker stockholders, violating trusts, etc., these and many other forms of fraud are constantly practiced.

CHAPTER XIV.

A CRITIQUE OF THE EXISTING ECONOMIC ORDER.

We have now reached the end of our purely scientific study of the economic phenomena of the present order. If we were dealing with a group of phenomena quite removed from human control, it would be natural to stop at this point. But we hardly need say that, with respect to economic phenomena, no such statement could properly be made. The present economic order is in greater or less measure the product of human arrangements. As such it must be presumed to be formed with more or less reference to the accomplishment of ends. Doubtless one may easily exaggerate the power of individuals, or of society as a whole, to alter the system in fundamentals. But so long as this power exists in any degree, indeed so long as people commonly *believe* that it exists, students of economics will feel called upon to consider the fitness of the present order to attain the ends for which it must be presumed to exist. To this, however, some may object that, although such a problem as that indicated is surely presented by the situation, still the economist as such is not called on to attempt its solution. Such persons would perhaps say that economics, being a science, has to do only with what is, not with what ought to be; consistency, therefore, requires the economist to leave the critique of the present order to some other class of persons, say, the sociologist or the publicist or the philosopher. There is no doubt force in this contention. It is to be remembered, however, that there is a degree of deference to logical consistency which savors of pedantry. In every field there arise problems having a mixed character,—problems dependent for their solution on data derived from various sciences. These problems must be discussed somewhere, which means that one, at least, of the sciences interested must transcend, in some measure, its natural boundaries. Now, it would seem that the science which we would naturally choose for this office is that one from which the larger number and the more difficult of the data necessary to a solution must be obtained. In the case before us, this condition is surely realized by economics.

CHAPTER XIV. CRITIQUE OF PRESENT ORDER

In further support of this contention that economics should undertake the task of ascertaining whether, and how far, the present economic order attains the ends for which it exists, we may remark that such practice is on the whole in accord with tradition. Economists, whatever their initial professions, have seldom failed to discuss the working of the system from the teleological standpoint, and even to argue for or against proposed changes, and it is probable that the instructed public give more weight to the verdicts of economists in respect to these matters than to those of any other class.

Note: In maintaining the foregoing contention, we do not mean to suggest that moralists, sociologists *et al.* should be estopped from discussing how far the present order is a success or a failure. We merely wish to insist that the economist can properly enough essay this task.

In the preliminary account of the existing order with which this course began, that order was represented as a coherent, rational whole,—a system having different parts devoted to different functions, all co-ordinated into a great harmonious totality. At the same time, however, it was represented that the organizing and regulating of this great totality was not conscious, but spontaneous, automatic. Further, we saw that the particular economic process having most part in automatically creating the great whole and regulating its operations, is exchange. Still, again, it was brought out that the particular part, element, in exchange which has most to do in regulating the organization as a whole, is *value, price.* More particularly, it was explained that it is price chiefly which determines what things shall be produced, how things, when produced, shall be utilized, and what proportion of the total product shall fall to the different participants in socialized production. In the present chapter we try to answer, not exhaustively, but with greater fulness than heretofore, the question: *How far is this automatically regulated economic system a success in attaining the ends for which it must be supposed to exist?* Does it secure fairly satisfactory results—as good results, anyhow, as it is reasonable to look for—*in respect to production, consumption, and distribution?*

In view of the tone of many previous allusions to this question, it is hardly necessary to say that the answer offered in this chapter is on the whole an affirmative one. Broadly speaking, we look on the existing economic order as measurably realizing the ideals which, considering the limitations of human nature,

it is reasonable to demand from such a system. But in taking this position we wish to disclaim in the most emphatic language any intention of representing the present order as a perfect one, either theoretically or practically. Its ideals are below the highest, though necessarily so as we think; and its practice is at many points far below its ideals. Many of its failures grow out of the limitations of human nature; but not a few are needless,—can be avoided. Increased interference with the actual working of things, both through private and governmental initiative,—if for no other purpose than to eliminate elements which are, and always have been, inconsistent with the system,—is imperatively demanded. Further, there can be no doubt that a degree of governmental interference which goes much beyond this, which limits sharply the free working of those conditions which are most characteristic of the present order, ought to be, and will be, forthcoming in the near future. Whether in the interest of society as a whole or of those individuals on whom the existing system presses too hardly, we shall doubtless see a more extensive resort to governmental initiative, a greater limitation of the rights of property, a further restricting of the rights of inheritance and bequest, a distribution of tax burdens far more favorable to the poor, public provision for old age pensions, and so on. In a word, when we defend the existing order we merely mean to affirm that that order is *in its main outlines* substantially sound, fitted to attain the reasonable ends for which such an order exists. Looked at broadly, it shows itself to be highly efficient and as much in accord with our moral ideals as we could expect in view of human weakness, folly, and wickedness. The general plan of exchange-cooperation, involving private rather than public initiative, characterized by private property in capital and, for most purposes, in land, with production, consumption, and distribution regulated in general through a price resulting from free economic action, is more likely than any fundamentally different scheme to work in a measurably satisfactory fashion. Increased regulation and a more liberal admixture of socialistic elements may improve things; but the general system, the main framework, is sound and, as human affairs go, adequate.

Section A. **The Present Order and Production.**

It would probably be admitted by well-nigh every one that,

in respect to production, the present system works fairly well,—anyhow is less defective than in respect to distribution. The socialist, it is true, lays considerable stress on certain deficiencies at this point; but most scientific students would probably consider his criticisms much exaggerated. Even the socialist would admit that a better case for the defense is possible here than elsewhere.

The chief characeristics which we naturally demand in a productive system, if it is to be adjudged reasonably satisfactory are: (1) that its product should be large—the *largest possible* from the resources available; (2) that the said product should be *good,*—the *best possible,* considering the resources; (3) that it should be *adjusted to wants;* and (4) that production as a process should be as *free* as possible *from marked irregularities. perturbations.*

How far does the present system display these characteristics? Beginning with the fourth, it must be admitted that, at the present time, our system is not very satisfactory. It is a familiar fact that production is subject to marked, almost violent, fluctuations, which naturally group themselves into the so-called industrial cycle: depression, recovery, increasing activity, normal activity, over-trading, crisis, collapse, depression, and so on. The claim of the socialist that public initiative would almost, if not quite, eliminate this sort of thing is surely a fairly reasonable one. Anyhow, socialism would be certain to work better at this point than does the present system. We do not, however, admit that this settles the matter. The fact is that the industrial cycle, in its serious forms, is a comparatively modern disease,—not much more than a century old. Further, even socialists admit that much has already been done to bring it under control. America, for reasons easy to trace, is still much subject to attack. But England, the original home of great panics, has had no serious crisis since 1866. In short, the leaders of industry are learning to control things sufficiently to safeguard against this trouble or, anyhow, to palliate greatly its evils. Accordingly, it would surely be foolish at the present time to pronounce a verdict against the present order on account of the defect in question.

Turning, now, to the first three of the characteristics which can properly be required from a good productive system, it seems certain that a favorable verdict must be given for the

present order. If we are looking for an order which insures abundant products, good products, and products which correspond to demand, the present one can surely give a good account of itself,—far better, probably, than could any substitute which should depend on public initiative. Take the first two matters, abundance and goodness of products. As respects fitness to secure these results, the present system supplies conditions which seem almost theoretically ideal in that it makes each man's income conditioned upon the price of his contribution, then establishes the freest possible market for those particular contributions which are bought and sold—labor services, capital services, and land services,—and, finally, in respect to the remaining factor —responsibility-taking,—it permits the almost untrammeled initiative of the individual. Now, making incomes dependent on contribution and maintaining a free market for land, labor, and capital services means that these are forthcoming, in so far as this is dependent on human choice, in the greatest possible abundance, and that they are inevitably put to the most profitable uses, i. e., that they are assigned to the places, combinations, *where they will add most to product.* In like manner, the regulation of income in accord with contribution, combined with free private initiative in respect to undertaking, means an initiative the most alert, bold, energetic, and informed that one can well imagine. It is quite incredible that government should supply an initiative at all comparable in these particulars.

The above verdict with respect to the productive efficiency of the present order is concurred in by almost all economists. Yet perhaps a moment's consideration should be given to the opposing contention of socialist critics that this order is not even productively successful. In support of this idea they bring forward three considerations chiefly: the wastes of competition, the idleness of the parasitic classes, and the sacrifice of utility to value. In respect to the first of these it is to be said that there are undoubtedly wastes in a system of free private initiative,—though their amount is grossly exaggerated,—but, in the opinion of the economist, *this so-called waste is merely the cost of a rarely efficient initiative, and a low cost at that.* For all students of business organization agree that the monopolistic and quasi-monopolistic business units are much less efficiently organized today than are the units exposed to free competition.

Again, we cannot take more seriously the talk about the

wasted productive capacities of the parasitic classes. To start with, their number is absurdly exaggerated. A large proportion of the persons so designated are performing functions which are essential to high productive efficiency. In the second place, it seems certain that, if they all were to become producers in the socialist sense, the amount which they would add to the income of each person would be scarcely appreciable.

Finally, in respect to the third objection of the socialist, he seems to economists to be seriously in error. As at not a few other points, he has made a mountain out of a molehill. There is no doubt the possibility of a contradiction between utility and value. That is, one who is seeking only to increase values may find himself in a position where he would better diminish output and so diminish utilities; and, since the immediate return to producers is a value return rather than a utility one, viz., purchasing power in the form of money, it naturally follows that producers will find themselves in a position where they can gain most by reducing, or at least checking, the increase of utilities. But, now, it is surely evident that the adoption and pursuit of such a policy as that indicated is possible only *through concert of action among producers;* since values can be increased by limiting output, only provided it is the *total* output which is thus limited, not merely that of *some* producers. But *concert of action among producers is in contradiction to the very essence of the present order* of which untrammeled private initiative is the dominant feature. Accordingly, it is quite illegitimate to represent this order as one in which it is inevitable that producers should seek to increase values to the neglect, or even the destruction, of utilities. Increase of values is doubtless the natural goal of the producer as producer; but, under a regime of free competition, *the only path by which that goal can be attained is the increase of utilities.*

We have seen that the present regime is eminently adapted to insure that products shall be abundant and good. We have still to remark on the fitness of the present system so to guide production that *products will correspond to wants, need.* In one sense of these words all would at once admit that this requisite is surely realized in the present order. Free private initiative combined with a free market, if capable of nothing else, is surely capable of adjusting output to wants. "But just here," the objector will say, "we strike a serious ambiguity. The adjustment

to wants, which takes place in the present order, is an adjustment to those wants *which express themselves in economic demand,* and those wants may or may not correspond to real social wants. In the case of the wants of the man who has money and can, therefore, contribute to economic demand, the present order will insure a production which provides for those wants; but how about the wants of the man who is without the buying power? These wants are surely far more real and serious than the wants of the rich man. But, obviously, no one can contend that the present order insures that production shall be so guided as to provide for these wants."

Now, the above represents an objection to the present order of much significance. But it is really an objection to the working of that order *in respect to distribution* rather than in respect to production. If price is to serve at all as a regulator of production, the money incomes of individuals will necessarily be unequal, since those incomes are made up of the prices of contributions which those individuals are in a position to make, and said prices are bound to be unequal. But if money incomes are unequal, the power to demand goods, economically speaking, and so the power to consume goods will be unequally distributed. But, again, the needs to which production ought to be adjusted are surely the needs of those who will actually consume,—any other interpretation would be nonsense. It follows, then, that the objection brought out above is really an objection to the present system in respect to the distribution, rather than the production, which it effects.

Section B. **The Present Order and Consumption.**

As respects the regulation of consumption, a satisfactory system needs to show three results chiefly: (1) Those natural resources which belong to society as a whole and to posterity must not be sacrificed to the selfish greed of the individual and the present; (2) The satisfaction of immediate wants must not absorb all our producing efforts to the neglect of that building of capital on which great productive efficiency depends; and (3) The best utilization of a stock of consumption products already existing should be assured.

With respect to the first of these demands, we must admit at once that it is very imperfectly provided for in the present

order. Under the free working of private initiative, the vast resources of a continent in lumber, coal, iron, etc., are being rapidly dissipated, and that in too large measure for the benefit of very small classes. Even the race itself has been threatened with serious deterioration through an unbridled use of liberty in respect to the employment of women and children; so that everywhere governmental interference has proved a necessity. All this is natural enough. When we are dealing with the interests of the remoter future, it is only within quite narrow limits that we can trust the forces which ordinarily prove efficient and safe regulators of economic action (see Walker). The safeguarding of those interests is a duty which from its very nature *rests upon the group,* rather than the individual. Unfortunately, the group too rarely rises above the standpoint of those individuals who are economically most powerful and greedy; so that the duty of the group at this point is too frequently neglected. Still it cannot be doubted that our only hope lies in this direction. Government must put great and rigid limitations on private initiative at this point, if the social patrimony is to be saved at all.

As regards the second requisite of a system which properly regulates consumption—that it should not permit the satisfaction of immediate wants to absorb all our productive efforts to the neglect of capital-building—our present system can give an excellent account if itself,—a better account, probably, than could be given by any system depending on public initiative. Capital increases at an amazing pace. This is doubtless not a little due to a feature of the system which is, in many respects, undesirable, viz., the extreme inequality of incomes, which, concentrating so much in the hands of a few, makes the task of saving relatively easy. But this is not the only explanation. The present system powerfully stimulates accumulation in that it offers to those who save, great rewards, not so much in the shape of interest, as in the shape of those profits which may be obtained by the skillful use of a small initial sum. A further reason is found in the fact that the present system supplies highly convenient and efficient machinery for assisting the process of capital-building, in the shape of savings banks, insurance companies, bond exchanges, etc.

As regards the third requisite,—the best utilization of an already existing stock of consumption products,—the present

system easily meets the case, save under quite exceptional circumstances. It belongs to the very nature of the laws of exchange to establish a price which adjusts demand to stock,—reducing demand, if stock is scanty, by raising price. But here, again, we meet the objection which was advanced when we were discussing the fitness of the present system to adjust production to demand. "Demand," it is said, "is adjusted to stock by being cut down through higher price; but this means that the demand of the poor falls off, while that of the rich keeps at its old level" Now there is, no doubt, some truth in this; still it must not be taken too seriously. In the first place, the statement is much exaggerated. Save with respect to a very few commodities, indeed, the number of families who do not reduce consumption at all when price rises is very small, —so small that its continuance of the old scale cannot materially alter the result. Secondly, as before explained, we have here an objection which is really directed against the *distribution* side of the present order, and so is not germane to our present discussion. If value, price, is to play a directive role in the economic order incomes are bound to be unequal. But if incomes are to be unequal, then the relative importance which we impute to wants must correspond more or less fully with this inequality; i. e., a certain want felt by a person of large income must be recognized as more important than the same want experienced by a person of smaller income. This sounds brutal, but it is an unavoidable conclusion from the premises, as was brought out in the closing paragraph of the preceding section. As it is "a hard saying" and yet of much significance in connection with our present task, it will be touched upon again in the next section.

Section C. The Legitimacy of the Distributive Principle Supposed to be Embodied in the Present Order.

In this section we begin the study of one of the most important questions to which the economist addresses himself: Does the present order work out a reasonably satisfactory result in respect to distribution? In undertaking to answer this question with a qualified affirmative, as we do in the remaining sections of this chapter, we would again disclaim any purpose to contend that the present system of distribution even tends to be ideally perfect, much less that it actually is. We freely admit that the

principle which it tries to realize is far below the best conceivable ideal, that our present order tries to carry out this principle while maintaining institutions which inevitably increase the evils which would in any case follow the application of the principle, and, finally, that in manifold respects the results are far worse than they need to be even under the full operation of the principle and its accompanying institutions, i. e., great improvements are needed, are possible, and ought to be effected. Nevertheless, we hold that a verdict for the substantial soundness of the present order, even in respect to the distribution it effects, is inevitable.

Our first task must be to consider the *general principle* of distribution which is supposed to be embodied in the existing order and ask ourselves whether, *in general,* that principle is a reasonable one,—whether, assuming the accompanying conditions satisfactory, that principle would commend itself as, on the whole, wise and just. In the discussion following, this question receives an affirmative answer. Let it be remembered, however, that in giving this answer we do not thereby affirm the reasonableness and justice of the principle in question *as it is actually worked out in the present economic order.* In that order, land and capital are objects of private ownership, and so their product is credited to certain individuals. Obviously, if land and capital were owned by the state, although the present principle of distribution continued to be dominant, the results would be very different as far as the individuals in question are concerned. Again, the present order provides for an almost untrammeled right of inheritance. Eliminating this condition, although the dominant principle was left unchanged, would surely cause a great change in the results.

1. What is the Supposed Distributive Principle of the Present Order?

It might, perhaps, be presumed that the answer to this question has been given sufficiently often, by implication at least, to make its repetition in this connection unnecessary. In order, however, to avoid possible misunderstanding we shall set forth the principle once more. Under the present order, when competition is free, each tends to *get approximately that income which expresses the marginal significance of the natural supply of the type of contribution made by himself or his prop-*

erty to the sum of utilities, and which at the same time expresses approximately the marginal disutility, original or derived, involved in making said contribution.

2. Some Other Possible Principles of Distribution.

It is scarcely necessary to say that no adequate critique of the dominant principle of distribution can be effected without some contrasting of that principle with possible substitutes. Of these the number is legion; but only two or three have had serious following.

A. Doubtless the most ideal principle of distribution is that which we try to realize in some degree in the family life, as also in the life of the state in the periods of greatest social exaltation. I mean the principle that each shall receive of the common income in proportion to his *need*,—having given in proportion to his capacity. This seems to have been, and to be still, the formula of the highest type of communism. "*From* each according to his *capacity;* to each according to his *need.*" To the present writer there seems no room for argument as to the ethical superiority of this distributive ideal over all others. If human nature were equal to the maintenance of such an ideal, no other formula would deserve a moment's consideration. But surely no one will seriously urge this as a possibility for the ninety millions of men, women, and children who constitute the population of the United States. Even those few hundreds who succeed in living somewhat near such an ideal in Amana and other communistic associations admit that their very limited success is made possible only because of certain very intense religious sentiments which are common to all the members and which it would never be possible to find in more than a very small minority of the population.

B. Next to the need ideal of distribution comes that of *equality*. To each an equal share, but from all service, is its motto. This is the more usual communistic ideal. It is apparently favored by many socialists. There is no doubt much to be said for it. The greatest discomfort from poverty is probably due to the contrast with the position of more favored neighbors. As a matter of mere sentiment, I sympathize with those persons who declare themselves willing to pay the price—the inevitable price—of equality, *i. e., an equality of misery.* But after all it is quite out of the question. Equality in income

would sacrifice the real, material welfare of all classes to mere sentimental considerations. Further, it would not even embody the ethical ideals which dominate practically the whole community. For, however people may feel toward interest, rent, and profits, they almost universally believe that wages and salaries, anyhow, *ought to bear some relation to service rendered.*

But this is too important a matter to be so lightly disposed of. Are we right in saying that an attempt to enforce complete equality would sacrifice the real material welfare of all classes to mere sentimental considerations? In support of this view, there are perhaps three chief considerations: (1) In the first place, there are not a few cases in which giving some persons larger incomes than the rest of us may properly be described as directly required in the interests of the rest of us, in that the larger incomes are necessary to enable said persons to perform efficiently the important tasks we have assigned them. Thus, we can be sure that no sensible person would contend that the people of the United States could afford to have their chief executive live on $1,000 a year even if he were perfectly willing to do so. To do his job at all well, he must spend, on matters more or less personal in their nature, many times $1,000. What is true of the president of a great republic is true in only lesser degree of hundreds of other men. In fact, if we sufficiently narrow the circle of interested persons, it is true in a way for almost every male citizen. To the other members of his family, it is more important that the breadwinner, though the humblest of day-laborers, should be well fed than that the rest should be, because only so can he be fit to earn the income on which they all depend. But, of course, the point is more forcefully illustrated in the greater relations of society. To those men whose functions involve large responsibilities, intense mental activity, and great nerve strain, we must, for our own sakes, give large incomes, in order that they may prove resolute, clearsighted, well-poised, and in other respects fitted for their great tasks. To this, however, the objector may say that we really have here a case not of better income, but rather of *collateral expenses.* Needs such as these should be provided for as part of the *outlay of the office* which the man holds. If $1,000 is the best income the community can afford its members, the president, *as a man,* must be satisfied with that income; though *on his office* we may spend $100,000. Doubtless

something, perhaps much, could be done along this line;* but the whole difficulty could not be met in this way. The need involved is often so *personal,* individual, in character that it cannot be provided for save through a fund placed at the disposal of the person interested. One person requires one sort of relaxation, perhaps a very inexpensive one; another requires a very different sort, perhaps a very costly one. Further, the employing public (under socialism), with whom opinion is greatly under the influence of persons who are not in a position to judge of the personal needs attaching to the higher social functions, would commonly underrate those needs, as is shown in the niggardly salaries now paid public officials in democracies. In consequence, provision for this kind of need, if made in a formal sort of way, would probably be far too small.

(2) The preceding paragraph has brought out *one* reason why inequality of income is necessary in the interest of the very persons whose apparent incomes would be raised by the abolition of that inequality. A second and more important reason, which in a way belongs to the same class, is found in the fact that unless incomes are unequal, they will not even approximately express the relative sacrifices involved in contributing different services, and, so, will cause an oversupply of services which involve small sacrifices and an undersupply of the opposite kinds. This difficulty has always been recognized by the creators of utopias; and to meet it a considerable variety of ingenious schemes have been brought forward. Thus, some writers have proposed that *conscripts* from all classes should have to serve a certain length of time in objectionable trades. Others have reserved these occupations for the *convicts.* More recently, we have had much stress laid on (a) *variations in the length of the labor day* and (b) *honor rewards.* An undesirable occupation might be made attractive by reducing the day from 6 hours to 4, or 3, or any figure which might prove necessary. So, attractiveness might be given said occupation by attaching thereto decorations, official rank, and so on. Now, it seems highly improbable that these devices should have anything like the effectiveness which is anticipated from them. The honor device, especially, overlooks the fact that honors, to be effective as a stimulus to emulation,

*Personally I heartily believe in such a policy wherever possible.

must not be *too commonly* employed. Gaining a prize is not worth while, if almost all the contestants gain prizes. Being a member of an academy which every one can join by paying $5, will attract people only so long as they are ignorant of the facts. But, whether these schemes are practicable or not, there can be no doubt that they are *inconsistent with real equality.* Why do I object to my neighbor's having a better income than I, supposing mine to be enough for a decent life? Obviously, it is because the spectacle of his enjoying advantages which I can not enjoy detracts from my peace of mind. Now, what matter as to the source of these advantages! To see him watching the great national game, or comfortably lying in the shade, while I toil and sweat in the sun would surely awake in me an unpleasant sense of contrast if these privileges were granted him as a *direct* reward for accepting some particular task just as truly as they now give me such an experience when they come as an indirect reward for that same service. So, again, one of the greatest objections to the inequality of the present order is that it gives to the men of larger incomes a higher place in the consideration of their fellows, better social standing, and so on. Will this deeper sort of inequality be any less obnoxious when it is *directly* created than when, as at present, it is the indirect result of inequality in money income?

(3 We have brought out two reasons why people generally, considered as consumers, must in their own interest prefer that there should be inequality of incomes,—that some other persons should receive better incomes than themselves. We have reserved for the last the weightiest reason of all. There must be inequality of incomes, some contributions must command much higher prices than other contributions, because *only in this way can it be made certain that society will make the best use of its resources,* its productive capacities. In a previous discussion. Section A, Chapter X, it was shown that, in a world like ours in which different kinds of ultimate factors enter in different proportions into the production of different commodities, said different kinds of ultimate factors being limited in amount and capacity, *each of said kinds of factors will have its own special significance* or importance as determined by the part it plays in producing goods. In the same connection, it was also explained that, under the present system of free private initiative and exchange, *the assigning to each factor*

a price which expresses approximately its true significance is accomplished automatically. Now, we hardly need say that *by some process or other the same task must be performed under any system of economic organization, e.g.,* socialism; since, otherwise, we could not have any assurance that we were making the best use of our capacities.

In the first place, assigning to things their proper price would be necessary under socialism just as truly as at present, *as a part of the public system of bookkeeping.* For it is hardly necessary to say that, if the state were to become the sole landlord, capitalist, and entrepreneur, it would be obliged to carry on an elaborate and complete system of bookkeeping in order to have at hand the knowledge of conditions necessary to a reasonable conduct of economic affairs; and, in this bookkeeping, the state would need to credit each ultimate factor with the true significance of that factor, since, otherwise, it would frequently waste important factors on unimportant commodities. That is, whether or not men were actually to receive unequal incomes, *they would have to be credited with unequal contributions.*

But, it having been admitted that the books of the socialist state would be obliged to credit each person with the true value of his contribution, can it be doubted that, under any system which is in the remotest degree practicable, said value, or something approximating it, would have to be paid to the man who made said contribution? We say "under any system which is in the remotest degree practicable;" for one might admit that a despotically organized communism, a system under which the effecting and regulating of cooperation is through *authority,* could "exploit the workers"—to use a socialist phrase,—i. e., could give equal remuneration for very unequal services. But surely we do not need to take communism seriously. We need, therefore, to consider only the case of socialism. Could that system of economic organization escape paying men in some proportion to their contribution? The answer is surely a negative one. One could, indeed, *conceive* a socialist state which at first thought would seem able to avoid the necessity of adjusting reward to contribution;—I mean a state conterminous with the earth and organized as a completely centralized despotism. Such a state might seem to be emancipated from all necessity for paying its workers according to any standard other than its

own sweet will; since competition would have been completely eliminated.* But it is surely quite unnecessary to take seriously the idea of a cooperative commonwealth coextensive with the earth and organized as a completely centralized despotism. If we ever have a collectivist state, it will be one among many sovereign states and a state in which local autonomy, municipal and provincial, still exists. It will, therefore, be one in which *competition* still exists. Different municipalities, different commonwealths, different sovereign states will more or less vie with each other in trying to attain the highest efficiency, and so will drive one another into paying laborers what they are worth.

As a general result of this long discussion, I think we may conclude that the ideal of distribution which would give to each citizen an equal share with every other is entirely out of the question:—the remuneration received by each must bear some sort of relation to his contribution. But, in insisting upon this point, we would not be understood as claiming that inequalities must always be just as great as they are today. We have no doubt that they would be much reduced under a socialist regime and that they will be much reduced under the present regime. Our present task is merely to make it clear that inequality is inevitable.†

C. We have discussed the Need and Equality ideals of distribution. We ought perhaps to touch briefly another ideal which seems to have been more or less consciously held by many socialists of the earlier type. Each should share in the joint income in proportion to his **labor.** This of course can be differently interpreted. One may have in mind the *sacrifice* made or the *results* accomplished. He may conceive the sacrifice as measured in a subjective standard or an objective one like time. In general, the socialists seem to have had in mind primarily the *sacrifice* ideal, measured by the time spent. Yet they tried not to divorce this completely from results, by insisting that the labor in question must be labor which *produced things,* and *standardized* labor at that,—i. e., labor which in the given place

* This hypothesis is of course too fantastic to merit serious consideration. I doubt if even the vast despotism supposed would be able to exploit the capable in any such way,—and that for two reasons: (1) the capable would probably be in power, and (2) if not, they would anyhow know their importance and by a single refusal to work for less could compel the authorities to raise their pay till it equalled the value of their contribution.

† If the object were of sufficient importance one might easily show that inequality has considerable compensations.

and time was "socially necessary" to accomplish the result. Marx made a further concession to reality by admitting that we could not treat all kinds of labor as quite the same, though he would not admit *qualititative* differences. The labor of the artist and that of the mechanic must be treated as differing in intensity, or density, so to speak. That is, one hour of the artist's labor should be reckoned as the equivalent of, say, three of the mechanic's. The futility of all this is easily shown. Any scheme of distribution which can reasonably ask for our verdict must in serious measure *make economic reward conditioned upon economic significance,—differences* of economic reward *correlative* to differences in economic *significance*. This Marx tacitly admits by refusing to reward labor which produces nothing useful, and by insisting that all labor must be standardized, reduced to "socially necessary labor." But differences in the economic significance of the several kinds of labor often show no correspondence either to labor time or to labor intensity. Accordingly, it is quite out of the question that labor as measured in labor time, even when corrected for intensity, should be accepted as the principle of distribution.

D. There is one other conceivable ideal of distribution which is probably more or less definitely held by many intelligent people, let us call it the **Social Service** ideal. This ideal differs from that embodied in the present order in that, under the latter, each is paid the price which expresses the significance of his services to individuals graded according to the buying power they possess, while, under the social-service principle, the significance of a man's services to the group as a whole or to all individuals without any reference to their wealth or poverty, would be the criterion.

This ideal of distribution has no doubt a very plausible sound. There is something particularly obnoxious in the fact that, under the present system, the power to furnish services of a very trivial sort, or even services highly immoral in their character, enables the owner to command a large income, because persons desiring such services chance to possess great buying power. But, after all, there is nothing in this proposal. First, in so far as it concerns the group as a whole, the new principle is already contained in the old. The group is fully organized and through the use of the sovereign power of taxation can insure that group wants are satisfied at whatever

cost, i. e., can see that services to the group are paid for in accord with their importance. Secondly, the proposed ideal as applied to individuals, is self-contradictory:—a principle of distribution simply can not pay according to the importance of the service rendered and not pay according to the importance of the service to individuals *graded according to buying power.* (1) Since men are to be paid in accord with services rendered, they are to be paid *unequally.* (2) This obviously means that the *effective demand* for commodities and services will be unequally distributed. (3) But the distribution of effective demand will necessarily determine in what proportion people will actually *consume* goods. (4) But the only importance which can signify anything is importance to actual consumers. (5) It follows, therefore, that to pay for services according to their importance to individuals without discrimination as to wealth or poverty, is to pay for those services in accord with their importance to persons who do not get them at all,—a process which really amounts to paying for services *without regard to their importance.*

3. Argument for the Service-Value Principle.

That the service-value principle is entirely defensible, in fact is the only defensible one, has almost necessarily been established in arguing for the impossibility of the equality ideal. But it is perhaps best to give a formal summary of the case and comment on two or three objections.

A. The ultimate and unassailable justification for the Service-Value Principle is **necessity.** Under no other principle could the economic action of a society in which any degree of individual liberty or local self-government was retained, be rightly guided,—i. e., guided so as to make the best use of its capacities. Theoretically, perhaps, a despotic state, world-wide in extent and completely centralized in administration, could come somewhere near the result by much experimentation, at the cost obviously of a ruthless exploitation of the capable in the interest of their fellows and of society in general. Even in that case, however, it would be necessary to *credit* each agent in production with the whole value of his contribution. For value, price, is nothing more than a particular method of expressing the relative importance of things. Correct prices, therefore, are necessary if we are to be furnished with correct

estimates of this relative importance. But, further, in the case of elements the output of which depends on human consent, it is not enough that we have correct paper prices,—bookkeeping prices,—we must also have correct real, objective, prices, i. e., we must *pay* correct prices; for, only in that way, can we insure the forthcoming of the several elements in their proper proportion. If socialism ever triumphs, if the state comes to undertake the responsibility of production as the sole entrepreneur, it will find itself obliged to pay its employees in a general accord with the true values of their contributions. It might still effect a vast improvement in the lot of the majority of men by eliminating many violations of the service-value principle which corrupt the present order, by exploiting in the interest of all rather than of the few the great natural resources, by abolishing or very strictly curtailing inheritance, even by taxing with considerable severity the incomes of those who supply specially valuable services. But, after all, the socialist state would find itself obliged to adopt as its guiding principle the same old rule that the values imputed to things must be a true expression of their marginal significance, and that the prices of those particular things which, being bought on the open market, have prices must correctly express their true value.

B. The preceding paragraph has brought out the positive argument on which is based a final verdict in favor of the Service-Value principle. Let us take a moment to comment on one or two objections.

(a) Probably the misgiving which most persistently recurs to a fair-minded man who in general recognizes the full weight of the argument for the service-value principle, is that the whole attitude of mind in which such a principle seems plausible to us is somehow too *cold-blooded,* too insensible to considerations of sympathy, humanity, love of one's fellows. When one is exercising his logical faculties on mere abstractions or is dealing with concrete objects which are mere *things,* e. g., apples, potatoes, etc., it sounds all right; but the case is very different when the interests at stake are the incomes and, therefore, *the happiness of living human beings.* Is there not something inherently shocking to our moral sense, even to our sense of mere decency, in the advocacy or adoption of a principle which places interests like these at the mercy of so unmoral

a thing as the law of supply and demand, or the law of marginal utility? Does not every right-minded man, at one time or another, respond with full approval to the belief expressed by Mill that a time would come when the division of society's product, instead of being a matter of automatic, mechanical, regulation, *"would be made by concert on an acknowledged principle of justice"?* In fact, is not this whole attitude of mind which conceives human beings as functioning, i. e., as mere instruments, mere *things*, inherently wrong? Must we not rather at all times conceive human beings as ends in themselves, never mere things?

Now there is surely some force in all this. We have never denied that a higher principle of distribution than the present one is possible. We merely insist that this is the only practicable one. We believe that its working in the actual order can be greatly improved by changes which would better satisfy the demands of moral and humanitarian sentiment above alluded to. We believe that its worst tendencies could be, and are, not a little offset by a secondary distribution through voluntary benevolence and the use of the taxing power,—all this in obedience to the same moral and humanitarian sentiment. But, when all is said and done, we have still no choice but to submit ourselves to a necessity which, if somewhat shocking to sentiment, is after all very real. We must accept the domination of the service-value principle, because it is the only principle which can sustain society from falling into the poverty and misery of communism. Nor, in truth, is the domination of the service-value principle quite the dreadful thing it is pictured. The correctness of the humanitarian sentiment above expressed is not quite so certain as is often assumed. Not a few people persist in believing that a man *ought* to be paid what he is worth. A still larger number feel no response to the notion that it is wrong ever to conceive human beings as functioning, as in some relations mere instruments, mere things. There is nothing unworthy or degrading in taking one's turn at being a mere thing, a something which functions in the service of others. On the contrary, most men who have passed forty have come to feel that there is little else that is worthy or satisfying; and they have on their side the opinion of the greatest religious teachers. In any case, whether it is a burden or a privilege, a curse or a blessing, it is the destiny of all. From

the highest to the lowest, we must spend a considerable part of our lives being the servants of others, mere instruments to secure their welfare.

(b) Among people who interest themselves in our problem but have little or no economic training, there appears some disposition to criticise the ruling principle of distribution because it pays men in accord with what we might call their *effective* utility rather than in accord with their *absolute* utility. Thus, the utility of coal miners as a class is surely far greater than that of high-grade singers as a class; but society pays a miner for an hour's work, perhaps, 40 cents, while it pays the singer for an hour's work, perhaps, $2,000. This objection always arouses a sympathetic response in the popular mind; but to the student who has acquired any comprehension of economic relations, it is quite without point. A person who puts forward this objection really admits by implication that it is right to have men paid *in accord with the importance of their services;* the objector only complains that we *set the wrong standard* for judging importance. The answer is easy. The real importance of any man is his *effective* importance,—*what we should lose if we lost* **him,** not what we should lose if we lost *his whole class.* For in nearly all cases, the alternative facing us is, not keeping or losing the whole class, but keeping or losing an individual of the class; and what we lose by losing any individual of a class is only the utility of the least useful of the class, since the loss of any higher utility would be avoided by transferring the least important member of the class from his present task to the higher one.

(c) Another objection closely allied to the last criticises the Service-Value principle because it pays a man, not in accord with *his own specific* utility, but in accord with the utility of the *marginal member of his class.* Thus, a man may be performing some service for which his employer is glad to pay him, and does pay him, $2 a day; when, without any fault on the workman's part, an increased supply of labor comes on the market and lowers the marginal utility of this class of workmen to $1.50 per day, with the final result that the first workman, though still performing the $2 service, now gets only $1.50. This objection makes less appeal to one's sympathies than the preceding one; since it could easily be contended that to pay one man $2 a day, when another working just as hard and

perfectly able to replace the first was getting only $1.50, was doing wrong to the latter. But, whatever the merits of the sentimental issues involved, this objection, like its predecessor, is quite untenable logically. If a man is to be paid in accord with his importance at all, the importance in question must be real, *effective* importance. But the real importance of a man is determined, not by the importance of the particular thing he accomplishes, but by the importance of the thing which the marginal number of his class accomplishes.

Section D. **The Legitimacy of Interest, Profits, and Rent, Supposing Them to be Absorbed by the State.**

In the preceding section we have contended for the legitimacy of the present system in respect to the general principle of distribution which it is supposed to embody:—Give to each person an income which expresses the marginal significance to his fellows of his type of service. But, as has been repeatedly pointed out, this leaves much of our task unaccomplished. The Service-Value principle may be all right in general but quite wrong when applied under the conditions prevailing in the present order. Thus, in the present order private persons are permitted to own land and capital, and, so, the services of land and capital are reckoned as the services of said private persons, with the final result that, under the working of the service-value principle, said private persons receive interest, profits, and rent. Is the service-value principle, when so applied, legitimate? In other words: Are interest, profits, and rent, as sources of private income, legitimate? In answering this question, we begin with a preliminary question. Are interest, profits, and rent legitimate, supposing them to be absorbed by the state? To this we will devote the present section.

1 The Legitimacy of Interest, Supposing the State to be the Sole Capitalist.

In an earlier connection, we discussed the various manifestations of the interest phenomenon which are found in the existing order. Of these manifestations, we found two general classes: explicit and implicit interest. Under thoroughgoing socialism, explicit interest—interest on contractual loans—could exist, if at all, only on the smallest scale; since, with the state occupying the position of sole entrepreneur as well as that of

sole capitalist, *productive* borrowing would be excluded, while, on the other hand, consumptive borrowing from the state would be consciously restricted within very narrow limits. Accordingly, interest, if appearing on any considerable scale in the thoroughly socialist state, would be of the *implicit* type; that is, it would show in the prices of goods,—meaning both the prices quoted on the market in the case of goods which were sold to private persons, and the prices recorded on the books of the government in all cases. We will begin with the second case, i. e., the prices recorded on the government's books.

As has already been pointed out and as must be evident to every one, if government is to perform the stupendous task of conducting all industrial activity with any sort of success, it must keep a complete, detailed, and trustworthy set of accounts—a set of accounts which represents the true values of both immediate and ultimate goods;—since, without such accounts, said government could never be sure that it was conducting its vast interests in such a way as to make the best use of the resources at its command. In short, the government of a socialist state will need just as elaborate and complete a system of values, prices, as that existing today. But, while a complete system of values will be necessary, it is of course possible that the values will in many cases be somewhat different from those of an individualist regime. Nay more, it is possible that some cases of value may disappear altogether. A thing or a condition comes to have value only when two conditions at least are fulfilled: (1) its disposal must involve some advantage, and (2) there must be some limitation on its being supplied, whether absolute or conditional (cost). Now it is conceivable that, under socialism, one or the other of these conditions will be lacking *in cases where both are present* under the existing regime. Thus, the advantage derived from a service today may be of such a nature that it will disappear when socialism is established, e. g., the services of an office furnishing abstracts of titles. On the other hand, the effective limitation of supply now existing may be due to the arbitrary action of a monopolist and so bound to disappear under socialism. Are either of these possible in the case of interest? Would the advantage or advantages for which interest is paid disappear under socialism? Would the supply of the condition which furnishes that advantage prove so abundant that it would no longer have marginal

utility and therefore no longer have value? A negative answer is inevitable in both cases.

First, the advantage or advantages for which interest is paid would not disappear under socialism. As was brought out in Section G, Chapter XIII, the essential nature of the transaction through which interest arises is the exchanging of future for present goods. That is, interest is usually a price paid for the privilege of having goods now, though we do not pay for them till later. Now, this privilege carries with it different advantages under different circumstances. Of these, the greatest and most important is commonly expressed by saying that capital is *productive.* By getting control of a fund of wealth *now* while freed from the necessity of paying for it till later, we are enabled to choose the more efficient methods of production which require longer periods of time. A lesser advantage flowing from the privilege of exchanging future for present goods is that it enables us to substitute payment at a more favorable, for payment at a less favorable, time. Thus, a man starting in on a job has perhaps no surplus in his purse; a month later he will have seventy-five dollars; the exchange which enables him to bring into the present the better provision of the future has surely given him an advantage. Now, would these advantages continue to exist under socialism? Surely, yes. It may be that the second advantage will cease to be effectual because the socialist state refuses to make advances to imprudent or unfortunate citizens who wish to anticipate the provision of the future; but the need will certainly exist and so the possible advantage. As respects the supreme advantage derived from the possession of capital,—being able to choose more efficient methods of production—this certainly could not disappear save on the hypothesis that the whole order of physical relations was overturned and a new one established in which direct, immediate methods were more efficient than roundabout, time-consuming methods. Of course no one anticipates any such revolution in the natural order of the physical universe, as a result of the establishment of socialism. Under that system, it would still be necessary to make tools before we made tables. The power to wait, the being so situated that we could devote wealth or productive power which might be employed for present needs to providing for future needs,—this would be just as necessary under socialism as under the present order. It is certain, then,

that the privilege of exchanging future against present wealth would be of advantage to the governmental entrepreneur of the socialist system just as it is to the individualist entrepreneur of our system.

But, in the second place, is it at all likely that the other condition which is necessary to give presentness a value, viz., that it should be relatively scarce, will disappear under socialism? In support of an affirmative answer, some one might say that the scarcity existing at present is artificial, and so would disappear when the only capitalist is the state, the sovereign. But this is manifestly unsound. There is scarcely any other part of the economic structure in which competition is so free as in the market for capital. An artificially controlled supply is quite out of the question. If the scarcity now existing is to disappear under socialism, this will have to be for some other reason Can it be that capital will increase far more rapidly under socialism than it does at present? Surely the contrary is to be anticipated. The absence of excessively large incomes will cut off one great source of capital; another will go with the removal of the necessity for saving on the part of the masses under a regime which assures every one a livelihood; finally, the direct turning back of income into business on which socialism must almost entirely rely, will be much more difficult when all authority is in the hands of a democracy, eager for the present and reckless of the future.

It hardly seems necessary to carry this discussion further. We surely can not doubt that under socialism the right to dispose of present goods while paying for them in the future would have a marginal utility and would, therefore, have value. The socialist state would have to treat the future uses of a piece of land as worth less than its present use, and, so, would have to make the sum of these uses—the value of the land—a good deal less than one use multiplied by infinity. Again, the socialist state would have to treat goods which cost $200 worth of past labor and $100 worth of current labor as more valuable than goods which cost $300 worth of current labor. And so, in every relation where implicit interest appears under the present regime, it would appear in the socialist bookkeeping.

The preceding discussion has shown that implicit interest would have to appear all through the bookkeeping of the socialist government. We have still to answer the question whether

it would be present in the prices of goods sold on the market. For example, would the state find itself practically obliged to charge more for goods the production of which involved the use of large quantities of fixed capital than for goods which were almost entirely produced by current labor. Doubtless another policy could be conceived. While keeping its books soundly, the state might decide to sell some goods below cost—cost being interpreted so as to include waiting, interest on capital. But it could not pursue such a policy without unequal and unjust treatment of its citizens. For there can be little doubt that in most cases there would appear great differences among citizens in respect to the amounts they would consume of these products which involve a large interest element. On the other hand, the burden of accumulating capital by turning the capacities of the community into the producing of future goods—goods dependent on time-consuming processes—would fall on people generally. The only way to insure fair play, then, would be to raise the prices of such products till those prices were high enough to put the burden of producing said products entirely on those persons who consumed them. Accordingly, we conclude that interest in itself is a legitimate element in price,—that, supposing such interest to be absorbed by the state as the sole capitalist, it is an entirely legitimate share in distribution.

2. The Legitimacy of Profits, Supposing the State to be the Sole Entrepreneur.

Of all the regular economic incomes, profits would probably show greatest modification under a socialist regime. Yet even profits would doubtless appear in somewhat disguised form, and, hence, must be reckoned as a perfectly natural and legitimate source of income under the proper conditions. In support of this contention, little more need be said than to remind the reader of the points previously made with respect to this particular source of income. Profits, as popularly interpreted, commonly include three elements: wages, interest, and profits proper. The wages element would of course persist under socialism. So also would the interest constituent, as we have just seen. What, then, as to pure profits,—the excess over ordinary interest received by the entrepreneur who turns over managerial functions to others? That excess, we have argued,

owes its origin to the burdens which are involved in taking the final responsibility of production. Of these burdens, the chief is the fear of loss, though, under the existing order, other psychological elements are doubtless present. Now, it seems quite certain that, under a socialist regime, this burden would be altered fundamentally in character, as also somewhat diminished in amount; but it would not be eliminated. At present the burden takes the form of a risk of never-to-be-compensated loss; and profits constitute the prize necessary to induce men to overcome their natural indisposition to assume such a risk. But, under a system which concentrated all resources in the hands of a single owner, all risks would be pooled, and, therefore, would almost disappear *as risks,* being replaced by *the certainty of fairly regular losses.* In other words, the socialist state would be obliged every year to write off a considerable volume of losses.* That is, some of its expenditure would have gone for naught. To make its books balance, this excess of expenditure would have to be charged against all, or some portion, of the products which resulted wherever industry was successful. Naturally the products chosen would be those of the industries where the losses had occurred. In no other way could we avoid burdening other citizens in the exclusive interest of those who consumed the products of riskful industries. We conclude, accordingly, that profits constitute a legitimate, even necessary, element in an economic system,—being inevitable even in a socialist state.†

3. The Legitimacy of Rent, Supposing the State to be the Sole Landlord.

Here an extended discussion is even less called for than under Profits. Rent inevitably emerges as the result of any process of natural value determination. It could not help existing under socialism. As soon as the best land, cultivated to the point of diminishing returns, proves unable to supply as much product as is demanded at some price above cost of production, price rises and in so doing creates a surplus over cost which

*As also to credit itself with some unexpected gains.

† It would be easy to argue that in many cases the burden of profits upon consumers would be greater in the socialist state than it is today, in that today private entrepreneurs gamble, so to speak, on the chance of loss or gain, whereas the socialist state would reduce the whole matter to a question of arithmetic, and, having ascertained the precise loss, would distribute it upon the product *pro rata.*

under any regime is bound to be credited to the given piece of land. Being so credited. the land takes on value as the source of said surplus. If the surplus is large, the value is large. All this is inevitable under any rational system. The socialist state probably could not get rid of it by any action however arbitrary. This would apply, not merely to the book-keeping of the state, but also to the system of market prices. For surely the socialist state could not have different prices for the same product in the same time and place, and it could not fix as the one price anything under the marginal cost of production; since, in so doing, it would discriminate in favor of the consumers of the particular commodity in question as against the rest of its citizens. But, if the state leaves prices to be fixed at marginal cost, it thereby permits rent to exist.

Section E. The General Legitimacy of Interest, Profits, and Rent as Sources of Private Income.

In the preceding section, we argued for the legitimacy of interest, profits, and rent, supposing the state to be the sole capitalist, entrepreneur, and landlord. That is, we argued that these shares correspond each to some portion of the output, which portion, on any rational system of valuation, is to be imputed or credited to the productive factor involved. They would, therefore, exist, and ought to exist, if the present economic system were replaced by the cooperative commonwealth,—only in that case they would fall to the state and so would benefit all rather than the few. There still remains to be considered the question whether interest, profits, and rent are legitimate as private shares,—sources of private income. This question, however, really contains two questions: (1) Whether, abstractly speaking,—viewed broadly—the shares named are legitimate sources of private income, and (2) whether, under the conditions actually prevailing, with all the weaknesses of human nature, these shares are legitimate. It is the first of these questions which we here consider.

1. The Legitimacy of Private Interest, Abstractly Considered.

Those who affirm that there is something essentially wrong in permitting private persons to receive interest must maintain either (1) that it is essentially wrong to permit private persons

to own capital, or (2) that, though right to permit private persons to own capital, it is essentially wrong to permit them to receive a net income from that capital. Now the first of these alternatives surely need not delay us long. As against communism, indeed, a defense of the right even to *own* capital without deriving any income therefrom, would be necessary; since communism holds that no right of property is legitimate. But today communists are almost unknown. It is only with socialists that we have to reckon; and socialists are constantly admitting both directly and indirectly that there is nothing inherently wrong in the private ownership of capital. Thus, they hold that it was right for private persons to own capital so long as the persons who did the owning were the laborers who used the capital for productive purposes. Further, they expect that under socialism individuals will be permitted to accumulate surpluses of general wealth, which today constitute the original form of all capital. Again, they constantly admit that, if the capitalist of today would be content to receive back what he puts into industry, relinquishing the surplus, no wrong would be involved.

But, even if the socialist should affirm that the private owning of capital is inherently wrong, he would find few to agree with him. The case is too evident, according to his own fundamental ethical principle. For the fundamental ethical principle of socialism is that *each has a valid title to what he produces;* and, though men doubtless become owners of capital through fraud, corrupt practices, gift, inheritance, and other methods which can not be described as producing said capital, yet it is equally certain that they may become, and do become, owners of capital by *producing* it; so that, on the very principles of socialism, they have a right to *own* said capital.

We come then to the second of the only two alternatives which are open to the man who affirms that the taking of interest by private persons is essentially wrong;—it is essentially wrong to permit the owners of capital *to receive a net income* from that capital. Now, this position, again, is quite untenable on the fundamental principle of socialism. In the first place, the capitalist who really produces the capital which he is permitted to own is, to some degree anyhow, *a producer of the product* which emerges when his capital is productively employed. This follows from the socialist doctrine that the man who pro-

duces the capital produces the goods which the capital produces.* But, secondly, since the capitalist who has really produced his capital is, to some extent anyhow, a producer of the product which emerges when his capital is employed, it follows that he has *a valid claim to some portion of said product;* since producing a thing is, on socialist principles, precisely the ground on which a valid title to that thing is based. In the third place, the capitalist not only has a valid claim on some portion of the product emerging from the employment of his capital, he has such a claim on *all that portion which can properly be credited to himself,* that is, all which through his capital he has produced; for producing a commodity not only creates a valid title to that commodity, *it is also the only thing which does so,*—that is, the producer has a valid claim *on his whole product.* It follows from all this that the socialist assumption that the honest capitalist has a right to just so much of his product as will replace his capital,—no less and no more—is not at all what he seems to think it, i.e. an aximomatic truth needing no demonstration. *What the capitalist really has a right to, on socialist principles, is what he produces through his capital. If this is less than the amount needed to replace said capital, he has a right to less than enough to replace his capital; if it is more than enough, he has a right to more than enough.* Accordingly, the real crux of the matter is whether the capitalist produces through his capital more than enough to replace it. *Has capital net productivity?* We will, therefore, once more run over the argument on this point.

The general question whether or not capital yields a net product could conceivably be tested in either of two ways. First, in a very simple economic society, it is usually possible to compare capitalistic and non-capitalistic methods with respect to their physical or *technical productivity.* That is, we can compare the result obtained from a certain amount of labor spent getting product directly with the result obtained from an equal amount of labor spent getting product by the roundabout or capitalistic method. In such a condition of things, therefore, we could decide whether or not as a mere technical fact, the second or capitalistic method of using our labor gave just the same product as that labor would have given if used the other way, or more, or less. Further, this would seem to mean that we should be able to decide whether capital just replaced itself, or gave more or less. But, now, admitting that this first test would be adequate for

primitive conditions, this is certainly not true under a developed economic order. In the latter case, this test could be utilized only in the rarest cases, and this for two reasons. First, speaking generally, the same kind of labor could not be employed indifferently (1) in producing a certain commodity without capital, (2) in making capital, and (3) in using capital. Men do not, could not, shift from one kind of these productive activities to another. In consequence, a direct comparison of the two plans of procedure, in respect to the labor expended, is out of the question. Secondly, the cooperative character of most productive processes in the present order often makes it impossible to distinguish *a technical product* for each of the different factors involved, in other words, compels us to be satisfied with trying to ascertain *the significance* or importance of each factor.

We have seen that our first test as to the net productivity of capital, even if it would be really adequate, cannot be utilized, generally speaking, under the present economic order. We are driven, then, to resort to a second test, namely, *the presence or absence of an index* of productivity in money values. We compare the money value of the cost goods utilized in production and the money value of the product, as these money values are determined under free competition; and, if a surplus is disclosed, we say that capital has net or surplus productivity. Manifestly, it is possible to apply this test. But is it a valid test? Is the existence of a value surplus an unfailing index of the existence of a product or utility surplus? I hardly need say that, if we accept the doctrine taught in Chapter 10 that prices necessarily tend to express marginal significances or utilities, we must answer the above question in the affirmative. Assuming competition among capitalists, the existence of a surplus value in product over costs other than waiting power proves that capital is economically responsible for a surplus product, that is, a product in excess of the amount necessary to replace itself. The argument for this contention has already been fully covered in Chapter 10. I will add here only this much: if the natural working of the laws of price cannot be trusted to define the real share of capital—waiting power—in production, the proposition assumed by the socialists that capital so far produces as to replace itself, has no more warrant than our contention that it produces more than enough to replace itself. For, if money values do not supply a trustworthy index of contribution, if the quantity of product

which is credited to capital through money values may be too large by the amount of the surplus, it may be too large by twice or thrice this much. That is, we have no method whatever of proving that capital produces enough to replace itself any more than we have of proving that it produces enough to replace itself and pay 6% also. In fact, we can go still further, and say that, if the money values which emerge under free competition cannot be accepted as trustworthy indices of contribution to product, we cannot be sure but that capital produces not merely a beggarly 6% surplus; it may in fact produce a surplus large enough to cover the whole product.

Thus we see that it is not possible to maintain either (1) that it is essentially wrong for private persons to *own* capital, or (2) that it is essentially wrong for them to receive a *net income* from capital. There is, therefore, nothing essentially wrong or illegitimate in private interest.

2. The Legitimacy of Private Profits

There are no doubt many cases of profits which it would be difficult to defend. But profits in general, a return to the person who assumes the responsibility of cooperative production, this is too plainly reasonable to merit serious discussion. That such persons are producers in the sense that they supply a condition essential to the result is obvious. That they are producers in the sense that to them some portion of the joint product is actually imputed is sufficiently proved by the fact that they get profits. (Compare the case of interest above.) But, if profits roughly correspond to a product of the entrepreneur, they surely can not be condemned as inherently wicked.*

3. The Marxian Theory of Profits and Interest.

A natural addendum to the above argument that private interest and profits are not inherently unreasonable or illegitimate, is the refutation of the most important among the theories which support the opposite conclusion. It is not too much to say that the socialist propaganda of today derives its chief power from a particular theory of profits and, through that, from a particular theory of value on which said theory of profits is

*It is interesting to note that even Medieval theologians, who sweepingly condemned all forms of interest-taking, permitted the taking of profits by those who accepted the full responsibilities and risks of an enterprise.

based. In an earlier connection, we discussed that theory of value—the Labor theory. Here we have to comment upon the theory of profits which was built upon that theory of value and which has been, and continues to be, one of the most powerful weapons of socialism in its attack upon the present order. The theory in question is commonly known as the Surplus-Value theory or the Exploitation theory. Besides the standard form, it appears in one or two popular guises which probably have more influence than the original theory.

A. The Standard Form of the Surplus-Value Theory.

In oredr to insure something like an exact understanding of the surplus-value theory, I will put the statement of it into a series of four formal propositions, as follows: (1) The value of the output of any producing unit (factory, railway, etc.) is determined by the labor expended upon that output. (2) The value, or cost to the employer, of labor power (capacity to give off labor services) is determined by the labor necessary to keep up the supply of such labor power, to produce the living of laborers. (3) The labor power purchased by the employer is able to give off considerably more labor than the amount necessary to produce the living of the laborer; and the employer sees to it that the labor power he buys *does* give off this excess of labor. (4) Accordingly, the value of the employer's output is in excess of his outlay; and, so, he gets a surplus which he divides with landlords and capitalists

To make this more definite, let us work out a concrete illustration. Let us suppose that it costs the labor of one-half day to produce the goods commonly considered necessary to support a laborer and his family for one day, which goods, according to the cost theory of wages, must constitute the price of a day of labor power, i.e., wages. Let us suppose, again, that to produce 25.8 grains of gold also costs one half-day of labor, and that the law decrees that 25.8 grains of gold shall constitute one dollar. Under these conditions, the price of one day of labor power, i.e., a day's wages, will be $1. At the same time, since the labor of a whole day will produce twice 25.8 grains of gold, every day of labor spent on any product will put into that product $2 of value. If, now, some entrepreneur buys a day of labor power and gets out of it a day's labor in spinning raw cotton which has cost him 50 cents, into cotton yarn, that yarn will be worth $2.50; i.e., 50 cents due to the cost of the raw cotton and

$2 because of the day's work put into it.* But the labor power which gave the employer a full day's labor and, so, put $2 of value into the yarn, actually cost him only $1. Accordingly, he finds himself in possession of a surplus of $1. This dollar is his profits.

There are various criticisms which might be passed on the surplus-value theory; but its prime defect is its dependence on the erroneous doctrine that value is determined by labor only. It attempts to explain the difference between the value of the product and the labor power for which the entrepreneur must pay—which difference constitutes profits—as due to the fact that the labor necessary to produce the entrepreneur's product is greater than that necessary to produce the required labor power. But, as we learned in Section B, Chapter X., the labor theory of value is quite untenable. Consequently, if there is a regularly recurring difference between the outlay of the entrepreneur and the value of his product,—and of course there must be to give profits—that difference must have some other explanation. What it is, has been brought out again and again. The entrepreneur, in supplying capital (his own or that of some one else) and in undertaking the responsibility of production, has contributed elements essential to the result, and as these elements are not yet supplied in amounts equal to the need for them, some portion of the output is credited to them, and, so, something less than the whole output is credited to the labor required. In consequence, the entrepreneur, who will surely be driven by competition to pay for labor substantially the whole of that portion of the output which is imputable to it, will not, after all, be required to pay labor the whole of that output.

B. In the preceding discussion, we have presented what has been called the standard form of the surplus-labor theory. Alongside of this standard form appear one or two interpretations which are probably more potent in creating sentiment against the present order than is the orthodox one. The most important of these might be described as the Capital-Monopoly theory. While not usually presented in formal fashion, it is constantly appearing in socialist writings, even in those of Marx. It runs in this wise. In our day, the great development of capitalistic methods of production has made it impossible for

*For the sake of simplicity I have ignored wear and tear of machinery and other minor expenses.

workingmen to own the instruments necessary to utilize their labor power, so that these have necessarily become the property of other persons. But laborers can not get along without these instruments, and are, therefore, compelled to accept such terms of employment as the owners of those instruments dictate, relinquishing a large portion of what they produce as the price of having the opportunity to produce at all. Now this method of presenting the case is potent as a means of propaganda, and it has a plausible sound; but it will not bear the least analysis. No class of productive agents can dictate their own terms, unless they are organized as a monopoly. But manifestly this not the case with capitalists,—entrepreneurs. On the contrary, competition is very full and free. So long as this continues to be true, labor will tend to get all that portion of the joint output which is imputable to it as its product.

4. The Legitimacy of Private Rent.

Among the several private shares into which the social income is divided, rent has always been the one with respect to to the legitimacy of which there has been the most serious doubt. This does not mean that there has been serious question as to the propriety or necessity of there being such a share as rent, but only as to the propriety of its going to the persons who now receive it. For the position which economists have only recently come to take with respect to interest, viz., that it is a natural and inevitable element in any economic order, was quite early taken with respect to rent. We can shift the landing place of rent, but we can not destroy it. Rent, as an advantage derived from land and enjoyed by some person or persons to the exclusion of other persons, save in so far as it is arbitrarily redistributed,—rent in this sense can not help existing. Again, the doubt as to the propriety of the present destination of rent does not involve any doubt as to the productivity of the land on which rent is received. There can be no question that a portion of the product obtained from an industrial combination which utilizes a rent-bearing piece of land must be credited to said piece as its special product, on any rational system of economic bookkeeping. It follows, then, that, if any man or body of men has a valid right to own the land, such man or body of men has the right to receive the rent of that land as being the product of said land. Accordingly, the crux of the whole mat-

ter is this: Can private persons acquire a valid title to land?

In answering the above question in the affirmative, we admit at once that it is more difficult to justify private ownership in the case of land than in that of capital. The fact that land is not, to any considerable degree, a produced good in the ordinary acceptation of terms, shuts us out in the first instance from appealing to the common ethical doctrine that a man has a valid title to what he produces.* Doubtless special cases arise in which the common moral sentiment would recognize some service of discovery and appropriation as sufficiently fulfilling the requisite of productive action to create a title under the ordinary principle. But such cases are infrequent. Broadly speaking, land is not a result of economic production. If, then, a valid title can be derived only from production, there can be no valid title to land either for the individual or for the state. But it is hardly necessary to say that production is not the only adequate basis of a valid title. If it were, economic cooperation through exchange, would obviously be impossible: no man could devote himself to producing one thing, depending on exchange with other persons to supply him with other things. At present, such a procedure is possible, because everybody recognizes that, *in so far as the validity of a man's title to property rests on his own action, exchange, carried out in good faith, gives just as valid a title as does production.*† The farmer who trades seven cords of woods which he has produced for a cutter has now just as good a title to the cutter as he did have to the wood; and, if he should now trade the cutter for a double harness, he would have just as good a title to the harness as he did have to the wood. But it is hardly necessary to remark that, in communities which are two or three generations old and in which there is free trade in land, practically all the landholders have acquired their landed properties through exchange. It follows, therefore, that they have, generally speaking, quite as good titles

*In utilizing as an ethical basis for our discussion the common doctrine that production gives a valid claim to goods, I do not wish to be understood as holding either (1) that said doctrine is unqualifiedly true, or (2) that there is no other valid basis for a property right in things. On the contrary, I hold that law can rightfully maintain any system of property rights which is found most conducive to the welfare of society. It seems best, however, in meeting popular objections to the existing order, to argue, in so far as this is possible, on the basis of such fundamental principles as are accepted by people generally.

†In so far, remember, as the goodness of his title depends on himself.

to those properties as they do to the horses, furniture, carriages, etc., which they have obtained through exchange.

Note: In the statement that exchange gives just as valid a title as does production, appeared the qualifying phrase: "in so far as the validity of a man's title to property rests on his own action." This was necessary to anticipate the objection which some would urge that exchange can not give a valid title to anything unless the seller himself has one and, besides, has the right to transfer his title. Applying this consideration to the case before us, they would say (1) that ordinarily the actual private owners of land have purchased from *other private* owners, and we can not assume that the titles of these previous owners are valid, since this would beg the whole question of the validity of private titles to land; and (2) that, if we try to meet this difficulty by harking back to grants by the state—the only natural or artificial person who can claim a valid title,—we have to assume that said state has a right to *relinquish* its title, to alienate its property,—an assumption which they insist is quite unwarranted, in that the state's title is that of a trustee acting for society as a whole or for men generally.

It is obvious that the pith of this objection is contained in the second part; for, if the original title derived from the state were good, the *number* of subsequent exchanges whether one or one hundred would have no bearing on the matter. The decisive question, then, is this: Is it reasonable to claim with the followers of Henry George that the state could never rightfully alienate its property in land? Surely in this age there can be but one answer. The state as the final authority can do whatever it believes to be for the highest welfare of society; that is, it has the right to alienate its property in land when this seems to be the right course, and it has equally the right to resume such property when that course comes to be recognized as the right one. In a word, the social welfare, as interpreted by the highest human authority—the state, is the supreme law, the supreme right. If a man has done his part toward gaining a valid title to land through exchange, he need not give himself anxiety lest the original grant of the state was invalid.

In the preceding discussion, we defended the general validity of private titles to land, and, so of private rent, on the ground that private landowners have gained their titles through exchange, purchase. Now, the same facts can be interpreted in a different way, and, when so interpreted, furnish an even better defense of private rent. When a man uses $2,000 to buy a piece of ground yielding a net income of $100, he in effect transforms that land into capital and its income into interest. Now, I do not admit that he literally makes capital of the land or interest of the rent. The land is still a different thing from typical

capital; and, in some very important relations, will continue to behave differently and, therefore, will need to be *recognized* as different. But, for our present needs, land *in effect* becomes capital. For our present needs, the real problem is this: What is the nature and origin of the $100 income derived from the given piece of land,—*said income being looked at from the standpoint of the man who buys the land in order to get said income.* To this question, there is but one answer: from the standpoint named, this income is interest. If there were no such thing as interest, i.e., if the rate were zero, this income, *as a net income,* would not exist. It is, indeed, true that the $100 would still be received by the landowner each year; but, then what would that mean as compared with what actually happens now? Under the present system, he gets $100 each year for an indefinitely extended series of years; but, instead of having been obilged to pay for each of these $100s an exactly equal times $100, he actually had to pay for it only twenty times $100, i.e., $2,000. If, however, there were no such thing as interest, though he would still get the $100 each year, he would have been obliged to pay for each of these $100's an exactly equal amount, that is, he would have been obliged to pay for the right to receive $100 every year for fifty years, fifty times $100, i.e., $5,000; or, for that right covering 100 years, one hundred times $100, i.e., $10,000; or, for that right covering 200 years, two hundred times $100, i.e., $20,000; or, for that right covering an indefinite period of years, an indefinite number of times $100. In short, he would get no clear income from the land, but, instead, would get back in an indefinite series of annual instalments, exactly what he had put into the land in one lump sum.

The preceding discussion shows that, from the standpoint of a landowner who has bought the land, the rent of said land is in effect interest. It follows, then, that, if interest, as a type of income going to private persons, is legitimate, rent is also.

But there is still one more objection to be met. The critic of the present order may observe that, though, in the course of the transaction by which land changes ownership, rent is transformed into interest, yet this is only a temporary phenomenon. That transformation was effected because *the value of the land adjusted itself to an income determined, not by the natural laws which govern interest, but by those which govern rent.* This process of adjustment for the moment established a ratio be-

tween land value and land income exactly the same as that which prevails between capital value and capital income. But, then, this did not really make rent into interest, nor bring it under the dominion of the natural laws which govern interest. The very next day, something might happen to double, let us say, the income from the site, therefore to double its value, and, so to give to the owner of the land an income and a property to which he could lay no valid claim, whether we base such claims on production or exchange.

Now, the above objection to the legitimacy of private rent sounds plausible; but it is not, after all, difficult to answer. Just as an unchanging rent derived from a purchased piece of land is in effect interest, so an increase in rent derived from such a piece of land is in effect *profits*. Nay more, it *is* profits. For, in accepting the responsibility of owning said piece of land, a man exposes himself to that risk which accompanies all ownership, i.e., the risk of seeing his property fall off in income and so in value. To induce men to assume said risk, it is necessary that there should also be present the chance of unexpected increase in income and value. When that unexpected increase comes, no new designation is needed for it; it is simply a case of profits. If, therefore, profits in general constitute a legitimate source of income for private persons, there is nothing inherently wrong in the so-called unearned increment of rents and land values.

Caution: It is not intended, in the above presentation of this matter, to leave the impression that the legitimacy of private ownership in the case of land is as clear and certain as in some other cases. Wherever the element of chance, accident, plays a very great role, there is much to be said in favor of public ownership. While speculation performs a real economic function, as was brought out in an earlier connection, such speculation is in many respects hurtful and demoralizing. A socialist state would need it much less than does the present order, in that the pooling of all industries would greatly diminish the risk element. Even going no further than to assume the control of land would do much to diminish risk and its attendant evils. But, whether private or public ownership will in the end prove best, of this there can be no doubt, *there is nothing inherently wrong in the private ownership of land and the private receiving of rent.*

Section F. Further Questions Involved in Determining the Legitimacy of the Present System of Distribution.

In the preceding three sections, we have considered the legitimacy of the present system of distribution in respect to its main features: the principle which it attempts to realize—the service-value principle—and its interpretation of that principle so as to give interest, profits, and rent to private persons. Time limits compel us to bring this discussion to a close without considering various other questions which would need to be answered in a truly complete critique of the existing order. We will, however, take a moment to call the student's attention to those questions without undertaking to answer them.

1. In Section E, we merely attempted to argue for the *general,* abstract, legitimacy of interest, profits, and rent as private shares, though admitting that, even if that question were answered in the affirmative, there would still remain the question whether under the conditions actually prevailing, with all the known weaknesses of human nature, the shares named can legitimately go to private persons. We recognize this question to be a really serious one. We see much force in the contention that, however reasonable it may be on general principles to permit the private ownership of capital and land and the private undertaking of industry, the evils which inevitably result from such a policy in the actual working of things make its continuance impossible of justification. But, although admitting the force of this consideration, still, in view of the great superiority, in other respects, of private, to public, ownership, and in view of the fact that its worst evils can be gradually removed without overturning the system, we believe that the system of private ownership should be maintained. At the same time, however, we believe that regulation of private initiative should be carried much further than it has been, that the limitations of the property right should be increased, and that at some points, how many and what only experience will show, *public ownership and initiative should be substituted for private.*

2. A second supplemental question of much importance is whether the present system is justified in permitting private individuals to acquire possessions through inheritance or bequest. Personally, I am disposed to answer this question in the affirmative but only with very emphatic qualifications. I would greatly reduce these rights both directly by legislation and

indirectly by a taxation which for the excess of larger estates over a certain minimum would amount to practical confiscation.

3. Still another question which a fuller treatment would attempt to answer is as to whether law should permit private persons to enjoy the extraordinary profits which flow from the exploitation of natural resources, public franchises, consolidations, etc. It seems very doubtful; but the question is too large for a paragraph.

4. Finally, one of the most important questions which must be left unanswered is this: How far can society afford to modify the primary distribution of property and income through a secondary distribution effected by taxation? For it would seem plain that, if the dominance of the present principle of distribution—to each in accord with the value of his services—is necessary to insure the proper conduct of economic affairs, we should spoil everything by arbitrarily contravening the working of that principle, *even though we do this after distribution in accord with the principle has once been effected.* For what interest would a man have in earning ten times as much as his fellows, if he is to be reduced to their level by taxation? Doubtless, if it were to go so far as this, he would have *no* interest in seeking the better income. But, on the other hand, there can be no doubt that a tax much heavier than that levied on his poorer neighbor would not influence in any material degree his economic efficiency. The whole problem is one of degrees. Probably its solution is possible only through experiment. In any case we shall have to be satisfied with merely suggesting it.

Section G. The Efficiency of the Regulative Mechanism Supplied by the Laws of Price.

From the very outset of our study of economic phenomena we have tried to make clear that we are dealing with a great coordinated totality which we frequently call the economic organism, and that this great totality is spontaneously, automatically, organized and regulated. Further it was made clear that the regulative mechanism consists of exchange *with its system of natural laws.* Throughout the preceding discussions of this chapter, we have by implication touched more or less upon the question *whether these regulative natural laws work well or ill.*

But it would seem desirable to treat the matter more systematically, passing in review the several principles of value and asking how far each is naturally fitted to perform the function which belongs to it as a part of the regulative machinery. Up to date, however, it has been impossible to carry out this plan. We will, therefore, content ourselves with presenting a series of problems intended to bring out the function or functions which may seem to be assignable to each principle, and asking the student to point out how far said principle seems fitted to attain a reasonable and desirable result in the performance of those functions.

Illustrative Problems.

1

"Assuming that the system of distribution is the proper one, the Law of Single Price forms in general a reasonable, desirable element in the regulative mechanism of economic society."

(a) Explain what is meant by the part of the above sentence which is included between the word "forms" and the end.

(b) Argue in favor of the proposition.

(c) Suggest cases in which you think society ought to interfere with the natural working of the Law of Single Price.

2

"Assuming that it is reasonable and desirable that the prices of the ultimate cost goods should be such as to express their marginal significance, the law that the price of any producible tends to equal the cost of producing it forms, in general, a reasonable element in the regulative mechanism of economic society."

(a) Argue in favor of the above statement.

(b) Suggest some exceptions.

(c) Accepting the doctrine of the quotation what would, generally speaking, be the proper attitude of government toward monopoly?

3

"Assuming the general legitimacy of profits, we need have no fear that excessive profits will appear in any business where competition is free."

Argue for the reasonableness of this view.

4

"Assuming that the system of distribution is the right one in view of all the facts, prices for consumption goods which express the marginal utility of the ultimate cost-goods are reasonable prices; for such prices, and those only, will insure that our stock of productive capacity is used in such a way as to correspond most nearly with demand."

(a) What is meant by the phrase "prices for consumption goods which express the marginal utility of the ultimate cost-goods?"

(b) Argue in support of the doctrine contained in the quotation.

5

Why is the present economic order likely to do better than Socialism in respect to the building of capital?

6

On page 404 (lines 7-10) appear an objection to the principle given on p. 242, when considered as a factor in the regulation of consumption.

(a) Give several illustrations of that objection.

(b) Argue for the contention that these cases are exceptional.

(c) Assuming that provision should be made to neutralize the bad working of automatic regulation in these cases in what different ways might it be done?

7

"Let us suppose that, in our belief, the services of a certain person, let us call him Mr. A., are worth to the rest of us more than, say, ten thousand dollars a year; that we can get those services only for this price; and that we decide to give him said price though each of the rest of us gets only an income of one thousand dollars a year. By virtue of the fact that we so decide, we also decide that it is for our interest that the desires of Mr. A should count ten times as strongly as those of each one of us, in determining the direction which productive activity should take. In other words we decide to recognize that that quantity of Mr. A's wants which he estimates at ten thousand dollars is ten times as important as the quantity of our wants which we estimate at one thousand dollars."

(a) Defend and illustrate this statement.

(b) Show that this inequality of income would enable Mr. A to deprive you or me of the satisfaction of some want in order to secure the satisfaction of some want of his, though, if the two wants were compared absolutely—by some outside person—,it would at once be admitted that your want or mine had the greater absolute magnitude.

(c) Under the hypothesis made in the quotation, is the particular result noted under (b) unreasonable? Explain. [Show that, if we are trying to ascertain relative importance, we are not comparing the right things under (b).]

(d) Do you suppose that Mr. A, or anybody else, would consider it proper or decent to insist on the rigid carrying out of this principle in every case?

(e) Suppose that, of the two wants contrasted under (b), Mr. A's was a want for some very silly pleasure, would this necessarily make your answer to (c) different? Explain.

(f) Suppose that a certain Mr. B who assists Mr. A in grati-

fying the very silly want which figures in (e) gets for this service to Mr. A an income of three thousand dollars a year, and is, therefore, able to exert three times as much influence on the direction of productive activities as you or I. Would this result be, abstractly speaking, unreasonable? Explain.

(g) Suppose that a certain Mr. C who assists Mr. B in gratifying a very silly want of the latter gets for his services a salary of two thousand dollars, and, therefore, is able to exert twice as much influence on the direction of productive activities as you or I. Would this result be, abstractly speaking, unreasonable? Explain.

(h) If, in questions (e), (f) and (g), we were to change the words "very silly" to "morally questionable," would the results necessarily be different? Discuss fully.

8

"The assumption that the ratio between the social importances of two wants is necessarily the same as the ratio between their absolute magnitudes—their feeling quantities—is quite unwarranted. By the social importance of a particular person's want we mean the comparative significance to the welfare of persons other than the one immediately involved, of having that person's want satisfied, as compared with the significance of having some other person's want satisfied. Now, the ratio between the significances to the rest of the world of Mr. A's wants and mine is more likely, I fancy, to be *different* from the ratio between the absolute magnitude of those wants than it is to be *the same*. Anyhow, there can be no doubt that said ratio *might* be different."

(a) Formulate one or more reasons why my fellow men generally should feel an interest in having Mr. A's wants and mine satisfied in accord with their absolute magnitudes.

(b) Formulate one or more reasons why my fellow men generally would feel an interest in having Mr. A's wants satisfied in larger proportion than mine.

(c) Can you imagine a case in which the ratio of the social significances of the wants involved would naturally be in *inverse* proportion to the absolute magnitudes of those wants? Explain.

9

Read carefully paragraph (c), p. 346, and show that the Principle of Marginal Productivity, which seems to exploit common laborers, just as truly exploits workers of higher classes and also capitalists.

10

Suppose that Fisherman A spends thirty days making a net; that this net will last in use thirty days; and that with its aid a fisherman can catch one hundred fish each day, while with his hands merely he could catch only twenty fish. Suppose, further, that Fisherman B hires the net from A, giving to the latter seventeen hundred out of the three thousand fish caught,

instead of fifteen hundred, *i.e.*, just one-half. Argue that B cannot reasonably claim that he is wronged.

11

Some recent Socialists who have finally relinquished Marx's Surplus Value theory of profit and, therefore, need some new argument for their conclusion that capital exploits labor, have returned to the old popular or naive theory. Their argument, which is not always very definite, may perhaps be expressed in the following five propositions: (a) only labor produces anything; (b) capitalists do not labor, therefore, do not produce anything; (c) capitalists do, however, consume products; (d) capitalists, therefore, must consume products produced by labor; (e) hence capitalists exploit labor; that is, get product produced by labor without giving an equivalent. This reasoning can be attacked either in Proposition (a) or Proposition (e). That is, we can deny that labor alone produces, or we can deny that consuming some products of labor necessarily involves exploiting labor,—that is, getting products of labor without giving an equivalent. Try to meet the argument in both of these ways using any knowledge you may have acquired during the semester and, more particularly, the matter given on pages 64-67 and 366-368.

12

"I never see one of Mr. Carnegie's libraries without being filled with indignation at the thought of the laborers who were exploited by Mr. Carnegie in the process of obtaining the wealth from which these libraries were built."

"I consider this very silly talk. Mr. Carnegie's laborers in all probability had no more claim to a dollar of this wealth than I have. If Mr. Carnegie exploited anyone in becoming a multi-millionaire, it was not his laborers."

(a) Argue for the correctness of the second quotation.

(b) Whom did Mr. Carnegie exploit, if anyone?

13

"Your orthodox economist pretends to believe that the present system of distribution works for justice in that it pays laborers in proportion to their efficiency. In reality, employers pay more efficient workmen higher wages, or bonuses, or whatever it may be, *not because justice demands this policy, but because the employer gains thereby.*"

Does the orthodox economist pretend that justice is secured, in so far as it is secured, *because the employer is seeking to attain that end?*

14

Suppose that we have a small Socialistic community owning twelve wheat farms of twenty acres each, which farms have a productivity, when worked with a certain amount of labor, ranging from twenty-four bushels per acre, through twenty-three, twenty-two, twenty-one, and so on, down to thirteen. Suppose,

further, that, under the conditions prevailing at a given time, the best eight of these farms can profitably be worked, and are so worked, by one man each, viz.: Mr. A, Mr. B, Mr. C, *et al.*,—all these men being precisely equal in productive efficiency.

(a) Under these conditions would it be reasonable to impute any product to one or more of the pieces of land?

(b) If so, how much product for each one?

(c) Would it be reasonable to say that Mr. A is *morally* responsible for the whole twenty-four bushels raised on his farm, even if he cannot be credited with it economically? (That is, is Mr. A the producer in such a sense that justice requires giving him the twenty-four bushels?)

(d) Who would be exploited if Mr. A were given the whole twenty-four bushels?

15

"The proper way to introduce Socialism is to increase every few years the taxes on land and capital, till the owners are glad to turn them over to the state in fee simple. This will involve no injustice, even on the principles of individualistic economics; since, unless the rate of taxation on durable income-bearers is increased from time to time, the owners escape all taxation, under the operation of the well-known Principle of Backwardation."

(a) Explain and defend this last contention as applied to land.

(b) Show that it is not sound in the case of capital.

FINAL REVIEW.

1.

On pages 3 and 4 stress is laid on the point that economic phenomena are influenced by artificial and temporary conditions such as legislation, public sentiment, custom, etc. Illustrate this point with some fulness, particularly in respect to the prices of goods, the rate of wages, and so on.

2.

Why is it particularly important, in economic matters, that we should not attempt to settle concrete social problems, such as protection, socialism, trade unionism, etc., by a simple application of economic principles?

3.

Defend the statement that the present economic order is a cooperative one.

4.

What is meant by saying that exchange *regulates* our cooperation under the present order?

5.

Illustrate how a socialistic community might leave exchange to regulate in some degree its economic activity.

6.

What is meant by heterogeneous cooperation?

7.

In what consists the chief advantage of trade between nations?

8.

Review probems 2, 3, 4, pp. 13-14.

9.

Answer the question which begins on line 32, p. 18.

10.

Discuss, with illustrations of your own, the proof presented on p. 17 that, under an exchange regime, each tends to profit from the increased efficiency of others.

11.

Defend the proposition laid down on p. 19 as Corollary 2.

12.

Review problems 2, 4, 8, pp. 20-21.

13.

Explain what is meant by functional specialization or co-operation, p. 23.

14.

In a great commercial center like New York there are many persons who make a living as note-brokers; that is, though not running a bank themselves, they discount the notes of business men and then get these notes rediscounted at some bank. In other words, they act as middlemen, so to speak, between banks and the borrowing public. Think of some ways in which this sort of specialization might be useful. How is it that such a business can flourish in New York but not in Ann Arbor?

15.

Review problems 6 and 7, p. 24; also 3 and 5, p. 25.

16.

Provided that, in respect to desirableness, the land varies by insensible differences, and provided that there is a considerable amount of land not yet in use, then land on the margin of cultivation will not be recognized as economically a factor in production.

(a) Explain what is meant by land on the margin of cultivation.

(b) What is meant, and what is not meant, by saying that such land is not "economically a factor in production?"

(c) Why will such land bear no rent?

(d) To whom will the product of such marginal land naturally go in the process of distribution?

17.

Be sure that you have mastered the argument given on page 32 to show that it is necessary to distinguish capital from simple labor.

18.

What is meant when I say: "It is necessary to credit a part of the product to capital, conceived as congealed labor, and another part to capital, as waiting power?"

19.

Argue that the above statement in quotation marks would be true under socialism.

20.

On p. 39, line 8, there is a sentence beginning: "In the opinion of, etc." Illustrate the point made from matters you

have learned about since your first reading of that page. (Read carefully the first paragraph of p. 39.)

21.

Review problems 5 to 9 inclusive. v. 41.

22.

"We can never get rid of rent; though we can fix things so as to have rent go to the community, as a whole, rather than to private individuals." Argue for the correctness of the above statement.

23.

Review problems 2 and 4, pp. 45-46.

24.

"Utility and disutility costs, being true opposites, are entirely commensurable." p. 47.
Explain and illustrate.

25.

Review carefully the argument for the contention that waiting must be treated as a real cost. pp. 48-49.

26.

In what sense is risk taking one of the disutility costs of production? pp. 49-50.

27.

What is meant by derivative costs?

28.

Review problems, 2, 3, 5, 6, pp. 54-55.

29.

Defend the definition of "produce" given on p. 56.

30.

Illustrate Comment (e), p. 58.

31.

Review problems 1, 4, 5, 10, 11, pp. 59-60.

32.

Give the chief explanation of the fact that more capitalistic methods are superior in efficiency to less capitalistic methods, pp. 62-64.

33.

Review problems 3, 4, p. 64.

34.

Be sure to master the argument for the productivity of capital, pp. 64-67.

35.

Review problems 2, 3, 4, p. 70.

36.

Show, by using some law of price, that people in general will naturally gain from the increased economic efficiency of their neighbors.

37.

How do we get an argument for free trade out of the principle that efficiency varies directly as the extent to which specialization is carried?

38.

Construct an illustration for the Law of Comparative Cost under which the exact amount of advantage gained by either party to the exchange might vary over a considerable range.

(a) Try to get out of this illustration another argument for the doctrine that we profit from the increased efficiency of our neighbors.

(b) Defend the statement that, in a sense, all economic cooperation involves mutual exploitation. (That is, each "works" the other;—gets something which naturally belongs to the other).

39.

Review problems 7 and 8, p. 78, and 2, p. 79.

40.

Distinguish Integration of Industries and Consolidation. If you prefer to employ the designations "horizontal combination" and "vertical combination," which phrase would you use to cover Integration?

41.

Review the six problems on p. 86.

42.

Review problems 2, 3, pp. 90-91.

43.

Review problems 2, 3, p. 92.

44.

Review problems 7, 8, p. 99.

45.

"The principle appearing at the top of p. 109 shows that the one laid down on p. 107 is largely hypothetical." Explain.

46.

"However, the two principles given on p. 112 show that the one on p. 107 is not *wholly* hypothetical." Explain.

47.

Review problems 4, 5, 7, 8, p. 115.

48.

What is the theoretic problem which Section B, Chapter 4, attempts to solve?

49.

Review problems 2, 5, 7, 8, p. 121.

50.

What is the theoretic problem which Section C, Chapter 4, attempts to solve?

51.

Review all the problems p. 127.

52.

Explain carefully what is meant when it is said that a particular thing acts as a medium of exchange.

53.

Be sure to master the second half of p. 129 and the whole of p. 130.

54.

Review problems 2, 4, 7, p. 131.

55.

Near the foot of p. 132 is given a characterization of credit-exchange as being the process of "bringing about in some way, etc." Prepare yourself to show clearly that this is the essential peculiarity of all forms of credit-exchange; check-exchange, bank clearing, and interlocal exchange.

56.

Review carefully the discussion of the rate of exchange on pp. 136-137.

57.

On p. 138, it is said that a Commercial Bank of the English or American type "may be described, in general, as an institution which acts as a common treasurer or fiscal agent for such

part of the general public as care to patronize it." Argue for the propriety of this description.

58.

Review problems 10 to 16 inclusive, p. 140.

59.

On page 142, it is said that the money stage of capital 'is only the representative form of capital, the shadow or image, not the substance."

(a) Explain what is meant.

(b) Are we to understand from this that the circulating medium of a country is not itself capital?

60.

Review problems 1, 5, 7, 9, 12, pp. 144-146.

61.

Review problems 2, 3, 5, 7, 11, 13, 14, 15, pp. 149-151.

62.

Review carefully Comment 3, pp. 152-153.

63.

Be sure you master the argument for the Principle of Reciprocity, pp. 153-157.

64.

Review problems 1, 5, 6, 9, 11, 12, 14, 15, 17, 19, 20, 21, pp. 158-161.

65.

Suppose we agree to name the valuations or utilities of the excluded buyers or sellers *extra-marginal* valuations or utilities, and also agree to name the valuations or utilities of the included buyers or sellers, except the marginal ones, *intra-marginal*—these adjectives being also applied to the buyers and sellers themselves.

(a) Under this nomenclature which buyers in the "wood" schedule, p. 177, would be extra-marginal and which intra-marginal?

(b) Which sellers would be extra-marginal and which intra-marginal?

66.

"Only one among the extra-marginal valuations on the supply side has any part in fixing price."

(a) Which is that one, and how does it influence price?

(b) Show that the others do not share in fixing price.

67.

"Only one among the extra-marginal valuations on the de-

mand side has any part in fixing price."

(a) Which is that one, and how does it influence price?

(b) Show that the others do not share in fixing price.

68.

"The statement that the going price must be one which equates demand and supply is little more than an identical proposition; for demand is what is bought and supply is what is sold, and, obviously, these are the same thing looked at in two different ways."

(a) Show that supply and demand are two quite different things in respect to their nature.

(b) Show that they are quite different, quantitatively considered, *i.e.*, are unequal, save at one particular price.

69.

Define normal price. Show that we can properly speak of a normal price for non-producible goods.

70.

Define increasing-cost goods.

71.

Illustrate the principle at the foot of page 242.

72.

Review problems 2, 3, 5, pp. 245-246.

73.

The table below gives portions of imaginary supply and demand schedules for silver. Under Output Schedule I and Demand Schedule A, the price would tend to be 53 cents. Show, by making different combinations among the schedules, that, in this case, marginal cost does not merely *adjust* itself to a price fixed by marginal utility,—that, on the contrary, marginal cost plays an essential part in *determining* price.

Possible Output mil. oz. Sch. II	Possible Output mil. oz. Sch. I	Cost or Utility cents	Demand mil. oz Sch. A	Demand mil. oz. Sch. B.
260	250	59	190	200
260	245	58	195	205
220	240	57	200	210
220	235	56	205	215
220	230	55	210	220
220	225	54	215	225
220	220	53	220	230
160	215	52	225	235
160	210	51	230	240

74.

Be sure to master the argument on the middle of page 249.

75.

Construct for the "tea" problem a new supply schedule under which marginal cost would share in the determination of price. Explain.

76.

Construct a series of schedules analogous to those given in the last problem to bring out the converse of the point there made: *i.e.*, to bring out the point that marginal *utility* does not merely coincide with price but also plays an essential part in fixing price.

77.

"While the law that price tends to equal money cost of production cannot properly be looked on as going to the bottom of the matter, it is after all of great practical importance in various connections."

Illustrate for some of these connections.

78.

Review problems 2, 5, 6, 7, 8, pp. 251-253.

79.

Review problem 10, p. 253.

80.

Read carefully the note at the foot of p. 254.

81.

The table given below represents portions of the output and demand schedules for a certain rare brand of tobacco. On the basis of this table, answer the following questions:

Output lbs.	Cost or Utility dollars	Demand lbs.
1,171.51	4.00	500
1,171.50	3.50	1,000
1,171	3.00	1,200
1,170	2.50	1,400
1,168	2.00	1,800
1,165	1.50	2,500
1,160	1.00	3,000
1,150	.50	6,000
1,100	.30	15,000
1,000	.20	40,000

(a) What price will tend to prevail? Prove.

(b) What will be the marginal cost? The marginal utility?

(c) Which of the two will determine price? Prove. (This is the important and difficult part.)

(d) How does the other come to be what it is?

82.

Review very thoroughly all the problems given on pp. 258-259.

83.

"I own a steamer which runs between New York and the Mediterranean ports; which steamer I wish to sell. It has been earning for several years a net income of $25,000 per year. This fact surely warrants my asking for said steamer a price of $500,000."

Is the reason he gives for considering the steamer worth $500,000 a valid one? Why?

84.

Illustrate the point that producible goods *may* at times come under the principle laid down on page 265.

85.

Explain why, in working out a complete theory of prices, we are finally driven to ask ourselves how the prices of the ultimate cost goods are determined. pp. 272-275.

86.

Discuss the meaning of the last sentence of the first paragraph of page 275.

87.

Under the hypothesis appearing on pages 275-276, what would determine the prices of supra-marginal products? Answer the same question for the hypothesis on pages 281, 287, and 294.

88.

Develop the point given on page 282-283 that, under *one* hypothesis as to the relation between our wants and our capacities, value would ultimately be determined by disutility cost alone.

89.

Explain why it is very difficult under the present order to discover the several contributions of the several productive factors, pp. 287-288.

90.

In the principle given on page 296, it is said that "there tends to be established a coherent system of prices," etc. What is the point of saying "a *coherent system* of prices?"

91.

What do you suppose is meant by the phrase "A Theory of Imputation?"

92.

Try to get out of Problem 17, p. 354, a theory of imputation for labor and land under the very simple hypothesis laid down in that problem.

93.

Why do we call our theory of imputation the Automatic theory?

94.

"We use the imaginary equations given on pages 289-291 chiefly to prove that our problem is a reasonable one." Explain.

95.

Be sure to master the argument on pages 291-293.

96.

On what question turns the decision of the controversy as to whether disutility cost does or does not share in fixing price? pp. 298-300.

97.

"Disutility plays more or less part in regulating our economic conduct in a reasonable way; but it does not influence price." What do you suppose is meant?

98.

Review the four problems on pages 300-301.

99.

Review the five problems on pp. 302-303.

100.

Be sure to master the refutation of the labor theory of value, pp. 303-305.

101.

What is the most essential feature of Socialism?

102.

Review problems 3, 5, 7, 9, 10, 11, pp. 269-270.

103.

What do we mean by the monetary standard? Explain the difference between the immediate and the ultimate monetary standard.

104.

In Principle 1, page 314, occur these words, "which has its value fixed independently of its relations to other moneys."

Explain what is meant and show the need for such a qualification.

105.

Review problems 1, 2, 3, page 315.

106.

Review the five problems pp. 316-317.

107.

The Philippine mint had a ratio for gold and silver coin of 33.25 to 1 when the market ratio was 31 to 1. Which metal was overrated?

Suppose the market ratio had been 40 to 1, which metal would have been underrated?

Suppose the market ratio had been 31.8 to 1, which metal would have been overrated?

With our ratio of 16.98 to 1, which metal is underrated when the market is 15.82 to 1?

Our subsidiary coin ratio is 14.95 to 1; which metal does it underrate?

108.

Review problems 1, 2, 3, under Principle III, pp. 317-318.

109.

Review problem 3, under Principle IV, p. 318.

110.

Review problems 1, 4, 5 and 6, pp. 321-322.

111.

Be sure that you master the argument under Principle X, page 324.

112.

In Principle XII, p. 325, we read "circumstances may arise under which it is desirable, etc." Explain and illustrate.

113.

Review problems 2, 5, 7, pp. 326-327.

114.

How is it that we have an important problem in connection with the value of money, seeing that said value is fixed by the ultimate standard? pp. 327-329.

115.

Review carefully Principles XV, XVI and their corollaries, pp. 330-333.

116.

Review carefully the 15 problems on pp. 333-335.

117.

Review the three problems, page 309, and the one problem p. 312.

118.

Review problems 1, 3, 5, pp. 337-338, and problems 1, 2, 4, p. 339.

119.

Try to think of some way to diminish the force of the contention which appears in problem 5, p. 339.

120.

The point brought out in Comment (f), pp. 343-344, that the supplying of the land factor in production involves a derived disutility, is important from the standpoint of one who believes in interest, in that it supplies an argument for the legitimacy of private rent under normal conditions. Develop that argument. Show that there still remains a difference between land and capital, rent and interest, which makes the legitimacy of rent more doubtful than that of interest.

121.

"I have no patience with the idea that free competition between units so unequal as capital and labor can bring about fair results." Criticize.

122.

Review carefully the argument under Corollary 3, pp. 347-348.

123.

Review carefully the two notes on pages 348-349.

124.

Near the middle of page 350 occurs this sentence: "The principle as stated says . . . might increase the returns per unit of service performed, but not per person." Substitute for the words "per person" these: "the wages per day." Try to find out whether or not the statement would then be true.

125.

Illustrate Corollary 6, page 350.

126.

Illustrate the point made in the second part of the note under Corollary 8, page 351.

127.

Review problems 2, 3, 4, 5, 6, 7, 8, 13, 14, 16, 19, 22, 23, pp. 352-355.

128.

Don't overlook the Corollaries on pages 355-357.

129.

Be ready with the arguments for the principle on page 358.

130.

Connect the discussions under 3, pp. 359-360, with that given in Section C, Chapter 4, pp. 122-127.

131.

Review problems 1, 3, 4, 6, 7, 8, 9, pp. 361-363.

132.

Review problems 2, 3, 4, p. 369.

133.

Review the following problems—5, 6, 8, p. 41; 2, 4, pp. 45, 46; 3, 5, 6, p. 55; 4, 11, pp. 58-59; 1, 2, 3, 4, p. 64; 1, 2, 3, p. 70; 2, p. 372.

134.

"In general, intra-marginal valuations, whether on the demand side or on the supply side, do not *directly* share in price-determination. To this statement, however, the *first* intra-marginal valuation on each side usually forms an exception."

(a) Defend the first statement.

(b) Defend the second statement.

135.

Review the two principles on pages 373-374, and the two problems on the following page.

136.

Near the top of page 377, occurs this sentence: "Under Socialism the sort of risk now remunerated by profits would, etc." Explain just what is meant and why it would turn out this way.

137.

Near the middle of page 378, we have this sentence: "The facts with respect to such an entrepreneur are of no scientific significance, etc." Explain and justify the statement.

138.

Under normal conditions industries like transportation earn profits considerably in excess of what would naturally be expected in view of the actual investments. In order, therefore, to estimate the real value of these businesses it is customary to capitalize the net income as in the case of non-producible income-bearers. In Michigan at the present time, many auto-

mobile companies are showing a similar phenomenon; that is, they are getting profits far in excess of what the investment would lead us to expect. Accordingly, the Michigan Tax Commission proposes to use the same method for ascertaining the real value of such businesses as that used in the case of railroads, only the Commission recommends using a higher rate of capitalization for the automobile companies than for the railroads. Try to find the reason for making this difference.

139.

Study very carefully the note beginning at the bottom of page 382.

140.

Review the argument against the notion that profits tend to disappear.

141.

What is the point of the foot-note on page 387?

142.

Review carefully pages 390-399.

143.

"Taking up again, for a moment, the controversy brought out on page 396, there can be no reasonable doubt that the economist has a right, from the purely scientific standpoint, to study the question: Does the economic system *work well?*, provided he limits his investigation to the fitness of that system to accomplish economic ends. His situation is at this point precisely analogous to that of the physiologist who, just because he is a physiologist, is all the time studying the fitness of means to attain ends; but who, of course, limits his attention to a consideration of the *biological ends*, i.e., the maintenance of life and health. The only question upon which issue can properly be taken with us is this: Is it legitimate for the economist to attempt to pass judgment on the present order in respect to its fitness to accomplish the ends recognized as *ethically* valid?"

(a) Defend and illustrate the point that the physiologist, as such, is called on to pass judgment on the working of life forces.

(b) Give illustrations of points made by the economist with respect to the workings of things which are certainly within his proper field.

(c) Give illustrations of cases which one may reasonably view as properly placed *outside* his field.

144.

Probably the greatest weakness in the regulative machinery of the present economic order is its failure to secure steadiness,

regularity, in economic activity. The economic organism is one year working like a man under the influence of an alcoholic stimulant; the next it is moving like a hopeless invalid. Try to think of ways in which government could improve matters at this point without going so far as to replace the present automatic system with Socialism.

145.

Amplify and illustrate the two sentences which occupy lines 14-25, p. 400.

146.

Be sure to master the argument of the paragraph which occupies the middle of p. 401.

147.

Illustrate at length the second paragraph on p. 401.

148.

Review carefully the argument on pages 406-411 supporting the contention that one could not afford to enforce complete equality in distribution.

149.

Illustrate the point suggested in the footnote on p. 411.

150.

Give some reasons for believing that, as suggested on p. 411, inequalities in income would be very much reduced under Socialism, and without great harm resulting.

151.

Show that the Social Service ideal of distribution, conceived as excluding the idea that the rich man's wants are more important than the poor man's, is self-contradictory (p. 412).

152.

Review carefully the argument under A, p. 413.

153.

Review carefully the argument (pages 417-419) to show that interest would be a legitimate share, supposing the community to be the sole capitalist.

154.

Show that rent would have to exist under Socialism.

155.

Be sure to master the Surplus-Value theory of profits, pp. 428-430.

APPENDIX I

MISCELLANEOUS PROBLEMS.

1

A recent writer (not an economist), in setting forth the wastes of competition, has maintained, though with little or no argument, that, in so far as exchange means nothing more than that different producers bring each his product to a common store and take away each an equivalent, such exchange is necessary, legitimate, productive; but, in so far as exchange means what he quite improperly calls barter, dickering over and finally settling on a ratio of exchange between what one brings and what he takes away, it is not necessary or legitimate or productive. Show that such a doctrine is quite untenable.

2

A certain Detroit grocer who is a Socialist and no longer young often expresses regret that the obligation to support a family compels him to continue in an occupation which makes him a "parasite"—one who lives on others, consumes without producing.

Show with details that he probably is not a parasite.

3

It is often said that capital and labor are each indispensable to the other. Illustrate the point.

4

As social and industrial development advances, specialization and so cooperation go further and further. Try to think of several examples of specialization carried to a notable degree. If possible, choose cases from your own experience.

5

Illustrate the proposition that the working of the present economic order involves freedom of contract between individuals.

6

One eminent American economist is disposed to define capital as "inchoate goods," *i.e.*, goods in the process of becoming goods.

(a) Mention some forms of capital to which that phrase is especially appropriate.

(b) Try to make a plausible argument to show that the phrase applies fairly well even to a thing like a sewing machine.

7

. It has always been held that a pound of candy is capital while it is still in the hands of the merchant, although almost all writers say that it ceases to be capital when it passes into the hands of some consumer. Argue for the reasonableness of the first position.

8

A good many American economists are inclined to look on capital, in one sense anyhow, as a fund of money value embodied in goods. That is, they prefer not to call the literal engine capital, but to reserve this word for the $2,000 of value *in* the engine.

(a) How does this compare with business usage?

(b) Does it seem natural or useful in any way?

(c) Some who answer the last question affirmatively yet insist that such language is only figurative, and, besides, rather dangerous. Argue for both these points.

9

One eminent economist proposed to include under capital only *surplus supplies of subsistence*. Another agreed with him so far as to affirm that all capital is, in the last analysis, reducible to means of subsistence, even food,—that, so to speak, the first incarnation of every new piece of capital is a surplus of subsistence. Probably the majority of economists would hesitate to go so far; but all would admit that there is some truth in this way of putting the case.

(a) Show that, in a primitive community, the increasing of capital naturally begins with the accumulation of a surplus subsistence fund.

(b) Argue for the proposition that there is a sense in which the whole stock of capital, engines, fuel, raw materials, *etc.*, can be conceived as a subsistence fund. (Read Boehm-Bawerk's Positive Theory of Capital, pp. 321-322.)

(c) On the basis of that conception of subsistence fund, argue for the proposition that new capital has to begin with a surplus subsistence fund.

10

Argue in favor of the contention referred to on page 41 that we could reasonably include under capital *durable* goods which are devoted to supplying *consumption* service to the owner, *e. g.*, a dwelling owned and occupied by himself.

11

Give illustrations of your own of fixed capital, social capital, specialized capital, acquisitive capital.

12

Argue for the contention that we should naturally expect the rate of interest to be determined in the first instance by the supply of, and the demand for, *free,* rather than *invested,* capital. Would you expect the quantity of invested capital, represented in buildings, engines, machines, etc., to have an indirect influence on the rate of interest? Explain.

13

"A wise government will never let a dollar in money go out of the country; for, as every dollar spent by an individual makes him so much poorer, so every dollar paid out by the country to other countries makes the first country so much the poorer."

(a) In what sense must the word "spent" be understood to make the case of the individual and the country parallel?

(b) When used in this sense, is it true that every dollar spent by the individual makes him so much poorer?

14

Look up the Torrens' Land Title system (some cyclopedia), and see if its adoption would tend to increase the availability of capital.

15

(a) Suppose you had at your disposal more A's than you could use, but your stock of B's was smaller than your needs; what combination would you naturally use?

(b) Reverse the places of A and B, and answer the above question.

16

The combinations of our table from 1 to 8 have an excess of A's; those from 20 to 27 have an excess of B's. How would you describe those from 9 to 19, from this same standpoint of the excess of one or the other factor?

17

Combination 9 gives us the point of maximum efficiency for A's, and that of maximum returns for B's. Combination 19, on the other hand, gives us the point of maximum returns for A's and that of maximum efficiency for B's.

Explain fully what these statements mean.

18

In his Economics of Industry, p. 323, Marshall says that "the agents of production are the sole source of employment for one another" and that "an increase of capital enriches the field for the employment of labor."

Discuss these statements.

19

Try to show that capital as a whole certainly is not at

the point of maximum efficiency or at that of maximum returns.

20

Would a divisible factor ever be used in the post-maxima stage, *e.g.*, the stage wherein the return to that factor was absolutely decreasing because of the excess of the other factor?

21

Telephone engineers are credited with the opinion that their industry is, broadly speaking, an increasing cost industry. Argue for and against this opinion.

22

"With all respect to the contrary opinions of some reformers, it can not be doubted that with the great advance in productive efficiency, the economic lot of the masses of workingmen has decidedly improved during the last fifty years."

Argue for the proposition that, assuming the same advance in industrial technique, the lot of the masses would have been still better had their numbers increased much less.

23

"I can not understand the stress laid by economists on the importance of checking the growth of population. Every person born into the world brings with him not only a need for goods but also the power to produce these goods."

Show that this is not quite adequate.

24

Mill says that the law of diminishing returns asserts, in effect, that the limit set to the productive capacity of a country is an *elastic* one.

Argue for the propriety of this method of expression.

25

"A country gains by foreign trade only on condition that its imports exceed its exports—it gets more than it gives."

The Principle of Reciprocity tells us that the above condition can not be fulfilled. However, one might admit that there is a sense in which imports must always exceed exports to make trade profitable. Explain.

26

"The one remaining chief foundation for national wealth is commerce. While individual wealth may be aquired through internal commerce, only foreign commerce can add to the national wealth (a); and then only if the nation receives more than it gives (b). So the fact that there is a large and active commercial class in Japan does not necessarily imply the exist-

ence of a national asset. To the extent that a nation is compelled to purchase abroad articles necessary to its national existence in excess of articles produced in the country and exported to pay for them it loses *commercially* by the transaction (c). This difference, where it occurs, is usually called the balance of trade. Without attempting to discuss the economic principles involved, it suffices here to say that at present Japan's purely commercial activities do not constitute a national asset, for the balance of foreign trade is against the country. This condition has existed for twenty years now, and there is no prospect of a change. Consequently, Japan's foreign commerce must now be figured as a national liability."

Criticise the clauses marked (a), (b), and (c).

27

Give one or more reasons why it may be desirable to patronize your home dealers rather than Montgomery Ward & Co., even though you consider the reasons usually given for such a policy quite fallacious.

28

"For a long period Great Britain has imported more commodities than she has exported. This cannot continue indefinitely. One of these days she will be bankrupt."

Is that sound?

29

"One of the most serious objections to the Chinaman is that, even while he stays in this country, he consumes mostly commodities which must be imported from China; so that his wages go to support, not American, but Chinese industries."

Explain fallacy.

30

"If the rate of interest on a certain class of loans remains for a long period at 5 per cent, it is reasonable to affirm that this figure expresses at the same time the marginal utility of a year's use of one dollar of capital, and the marginal disutility of supplying that capital."

Construct a supply schedule for money capital and a demand schedule under which the rate of interest would tend to be just 5 per cent, and would at the same time express the marginal utility of capital and the marginal disutility of supplying it.

31

"If all day-laborers should agree to work with one hand tied behind them, would their wages go up or down? Would it be good or bad for this whole class of laborers?" (Fetter)

32

One of Professor Clark's favorite phrases is "functional distribution." What do you suppose he means by it?

33

"Capital might have become so abundant as to command no price except as congealed labor."

Explain what is meant.

34

"In the case of intermediate goods, value is influenced, in so far as demand plays a part, only by income."

Explain what is meant.

35

"Nothing can be more incorrect than to extend this reasoning (that price is governed by the law of supply and demand), as many political economists have done, to periods of unlimited duration." McCulloch in Ed. Rev. Vol. 30, page 61.

Show that McCulloch's opinion is unsound at this point.

36

"The valuation of an object is nothing more or less than the affirmation that it is in a certain degree of comparative estimation with some other specified object; and any other object possessed of value may serve as a point of comparison." Say, Political Economy, page 284.

Argue against the reasonableness of limiting valuation so narrowly as is done in the above quotation.

37

"The idea of value entered into the world for the first time when a man said to his brother, 'Do this for me, and I will do this for you'; they had come to an agreement: then, for the first time, we could say the two services exchanged, —*were worth each other.*" Bastiat.

Show that Bastiat's own language implies that he has in the back ground an *absolute* conception of value, instead of the purely relative one that he declares to be the only one.

38

"Whoever thinks of utility without thinking of cost, simply neglects, in the utility of one product the utility of the other." Von Wieser, page 183.

(1) In what sense is cost used in the above paragraph?

(2) Amplify the point made by the writer.

39

"Thus I venture to adhere to the opinion that distribution and exchange are fundamentally the same problem, looked at from different points of view, etc." Marshall, Economic Journal, Vol. VIII, page 47.

Argue for the correctness of Professor Marshall's opinion.

40

"Every such difference (in the rate of interest) implies a

violation of the very first principle of employing goods: that they shall first be used in the most favorable employment, and that the less favorable shall be allowed only in so far as there is not enough of the most favorable." Von Wieser, page 146.

Argue for the soundness of the above contention.

41

"No socialist state, for instance, could provide houses in such quantities that their value was reduced to the mere expenses of building, without disturbing the marginal plane, and diminishing the total sum of satisfaction obtainable by the employment of the national capital." Von Wieser, page 158, Note by Smart.

Argue for the correctness of that statement.

42

"If the payment of any amount due is deferred for some time, it is only fair that a little more should be paid to compensate the creditor for being deprived so long of the money to which he is entitled, and of which he might make a profitable use in buying a larger stock of merchandise. This gives rise to interest or compensation for credit." Fiske's The Modern Bank, pages 6 and 7.

Show that such an explanation of interest is quite inadequate.

43

"Every properly conducted concern includes in its cost of production a regular charge for depreciation of its plant, property, and equipment. This charge, if correctly figured, keeps the value of its property account at the convertible figure. In these circumstances, it would seem that charging interest as well on the amount invested would be making a double charge." W. B. Richards in the Journal of Accountancy.

Show that Mr. Richards' contention in the above paragraph is quite unsound.

44

"Ricardo's explanation of agricultural rent only explains it as a gross return to the land, not as a net income to the owner." Explain fully what is meant.

45

Look up Professor Fetter's idea of the relation between rent and interest.

46

"The law of diminishing returns is at once a cause of rent and a check upon rent." Explain how this is possible.

47

"The principle that price must in the long run equal the cost of production is only a part of the process whereby price

is made to express the marginal utility of our primary cost goods." Explain how this can be.

48

"If there were no cost of production, we could produce as many of the objects as we please with no sacrifice of any kind; so that we could satisfy all our wants down to zero. In that case, there would be no marginal utility in things and, therefore, no value." From a student's paper.

Show that the student quoted rather over-stated things.

49

"The economic forces have no tendency whatever to direct my effort to the most widely important end or the supply of the most urgent individual need." Wicksteed, page 189.

Argue that Wicksteed very much over-stated this case.

50

"Labor is found often to detemine value, but only in an indirect manner, by varying the degree of utility of the commodity through an increase or limitation of supply." Jevous Theory of Political Economy, page 2.

Show that it is perfectly possible theoretically that a change in the cost of production should change the price without changing the marginal utility.

51

Explain what we mean by the naive or popular productivity theory of interest.

Show that this theory involves reasoning in a circle.

52

Define and distinguish explicit and implicit interest. Give illustrations of the chief sorts of implicit interest.

53

Give the dilemma by which Boehm-Bawerk tries to show that there can be no productivity explanation of interest.

Show that neither horn of the dilemma is in the least degree dangerous.

Show that the dilemma is merely useful in isolating the real problem to be solved.

54

Why do we describe Carver's explanation of interest as a cost-productivity theory?

55

One writer thinks that Carver in order to make his explanation complete needs to go on to meet the English horn of Boehm's dilemma. Show that the explanation made by Carver

has already completely met the dilemma of Boehm; or anyhow has demolished the English horn of that dilemma.

Show that on pages 245 to 249 Carver demolishes the Austrian horn of Boehm's dilemma.

56

Starting with the data given in problem 2, page 369, perform the following problems:

(a) Show that if the owner of the net and the fisherman each get 1500 of the 3000 fish caught there would be no interest.

(b) Show that if the fish were divided in such way that 1700 went to the owner of the net and 1300 to the fisherman, there would necessarily be interest.

(c) Explain what condition would bring about a bargain of this sort between the owner of the net and the fisherman who borrowed it.

(d) Show that when you have accomplished the task last set, you have already met the difficulties presented by Boehm-Bawerk's dilemma.

57

"Labor is found often to determine value, but only in an indirect manner, by varying the degree of utility of the commodity through an increase or limitation of the supply." Jevons' Theory of Political Economy, page 2.

Show that it is perfectly possible theoretically that a change in the cost of production should change the price without changing the marginal utility.

APPENDIX II.

EXPLANATORY NOTES.

As indicated on page 39 we continue in this text the conventional distinction between land and capital. A full discussion of the reasons for this decision would be out of place in Course 1. Further, the strongest reason, *viz.,* that land and capital behave differently in respect to value-determination, can be appreciated only when we have considered the latter subject. There is, however, one objection to the orthodox position having considerable vogue in our day to which we will give a moment's attention. As the student will remember, the orthodox analysis makes *producibleness* the line of demarcation: land is of *natural* origin, capital is a *product.* Now, to this distinction it is objected that real land, land as we know it, is producible just as truly as capital. It is, of course, true, they say, that the *amount* of land is unchanging, but the *economic supply* is constantly altered by man. Now, it would be quite inconsistent for us to deny that our critics have a perfect right to use "producible," "amount," and "economic supply" in these senses, if they think best. All analysis and definition is more or less inadequate and illogical. But we can, I think, rightly object to their employing these meanings to prove that land is producible in our sense. As we use the terms, "economic supply"* is not broader than "amount," but narrower. If I can not first add to the *amount* of anything, I can not add to the *supply* of it; though I can add to the amount without adding to the supply. The natural explanation of the language cited would seem to be that the writer has made a false antithesis by joining the first member of one antithesis with the second member of another. In every producing combination, there is an *unproducible* something, the *amount* of which is properly contrasted with the *economic supply* of it. There is also a *producible* something the amount of which is properly

*Save, perhaps, in the case of the fictitious supply of option trading.

contrasted with *its* economic supply. But we have no business to put the amount of the unproducible something into antithesis with the supply of the producible something. When I put on the market a field that is cleared of stones, drained, and leveled, I am adding to the economic supply of *prepared* land. But, unless I or some one else had already added to the *amount* of *prepared* land, I *could not* have added to the supply of it. In fact all this sort of thing seems to confuse the *using* of object A in order to produce object B with the *producing* of object A. The man who takes flour, out of this flour makes bread, and puts this bread on the market, is not only not adding to the *amount* of *flour,* he is also not adding to the economic *supply* of *flour.* He *is* adding to the *amount* of *bread* and he *is* adding to the *supply* of *bread.*

Note to Page 99.

In the series of imaginary experiments just analyzed, Factor B was *increased* with each experiment. It is obvious that, if the results of said increases are as indicated, decreases would be followed by opposite results; that is, we can read our table up as well as down. So read, it gives the following result: If we start with one of the factors in great excess and diminish that factor in successive experiments, the results will break into three stages as before: (1) output increasing; (2) output diminishing but less than proportionately; and (3) output diminishing more than proportionately. This way of looking at the matter is important as furnishing an additional *test* as to the stage in which a factor or an industry is to be found.

Note to Page 105.

On page 104 it was explained that a table reversing the rules of As and Bs was directly deducible from Table I given on page 96. The following discussion shows how this is accomplished. First, the averages given in Columns VII and VIII would of course result from all combinations *showing the same ratios of A and B,* whatever the total of said combinations. Thus, Combination 5—20 As to 6 Bs—gives a B average of 14 and an A average of 4.2; and the result would be the same, if the combination were 100 to 30 or 40 to 12 or 30 to 9 or any other embodying a ratio of 10 to 3. We can, therefore, make a table showing just the same averages for each combination *by diminishing As*

rather than increasing Bs, provided, of course, we reproduce the same combining ratios. Secondly, we can compute from these averages the total output from each combination. Thirdly, we can begin at the bottom of this table, thus making A an increasing factor, and compute proportional and actual increases in product just as in our first table. Carrying out this plan gives us Table II.

TABLE II.*

I	II	III	IV	V	VI	VII	VIII	IX*
No. of Comb.	*Amount As*	*Amount Bs*	*Output*	*Propor. Increase*	*Actual Increase*	*Average in As*	*Average in Bs*	*Marginal Product of As*
1	200	20	20	20	— 20	.1	1	— .3
2	133.3	20	40	26	— 40	.3	2	—1
3	100	20	80	35	— 60	.8	4	—3
4	80	20	140	56	—140	1.7	7	—6
5	66.6	20	280	60	— 80	4.2	14	—8
6	57.1	20	360	56	— 33	6.3	18	—4
7	50	20	390	50	— 5	7.8	19.6	—1
8	44.4	20	397	44	— 2	8.9	19.9	— .5
9	40	20	400	79	7	10	20	1
10	33.3	20	393	63	13	11.8	19.6	2.6
11	28.5	20	380	58	18	13.3	19	5
12	25	20	362	43	16	14.5	18.1	5.7
13	22.2	20	346	36	16	15.6	17.3	7.2
14	20	20	330	34	18	16.5	16.5	9
15	18	20	312	36	22	17.3	15.6	11
16	16	20	290	38	24	18.1	14.5	12
17	14	20	266	39	30	19	13.3	15
18	12	20	236	40	36	19.7	11.8	18
19	10	20	200	19.8	21	20	10	21
20	9	20	179	19.5	23	19.8	8.9	23
21	8	20	156	18	30	19.5	7.8	30
22	7	20	126	14	42	18	6.3	42
23	6	20	84	7	49	14	4.2	49
24	5	20	35	4	19	7	1.7	19
25	4	20	16	2	10	4	.8	10
26	3	20	6	1	4	2	.3	4
27	2	20	2	..	..	1	.1	1

*The first table was constructed symmetrically in respect to A and B; so that, in making the second table, literal computation is unnecessary.

In this table we start with 200 As and 20 Bs, a combination which embodies the same combining ratio as Combination 1 of our first table, and diminish the As each time just enough to reproduce exactly the ratio of the corresponding combination in our first table. This will of course make our averages for Columns VII and VIII the same as in the first table. We then compute* output totals for Column IV by multiplying the B average of each combination by 20. We then compute proportional and actual increases, beginning at the bottom, for Columns V and VI. Finally, the marginal products for A's are computed from the bottom upwards and entered in Column IX.

Reading this table upwards, we obviously have an exact analogue of Table I, *i. e.*, we have a table in which one of the factors (B this time) remains constant while the other, A, increases. The results are of course the same also. From Combination 27 up to 19, output increases more than proportionately to the increase of A; from 18 to 9, it increases less than proportionately; from 8 to 1 it decreases. When averages are followed, also, the results are the same as in our first table. That is, from 27 back to 19, the average, measured in either factor, increases; from 18 to 9, as measured in B, it increases, but, as measured in A, it diminishes; from 8 to 1, it diminishes, measured in either factor. It is thus evident that, if the combinations behave as supposed when A remains constant while B increases, they will necessarily behave in similar fashion when B remains constant while A increases. In short, anything which we can affirm about A. in the first series, can be equally affirmed about B in the second; while anything we can affirm about B in the first series can equally be affirmed about A in the second.

It follows from what has just been said that every particular combination in Table I wherein A is constant and B increasing, appears in another guise in Table II, wherein B is constant and A increasing; and, in consequence, we have a new choice of ways for expressing some of the most important cases. If we wish to describe a given combination from the A standpoint, we can treat it as a combination in which A is the constant factor or as one in which A is the increasing factor. Thus, if we know that A, as the constant factor in an A-B series of combinations, has reached the point of maximum efficiency,—Combination 9,—we can express the fact in this way, or we can

*Read upwards.

say, instead, that A, as the increasing factor in a B-A combination, has reached the point of *minimum productivity;*—we could not increase the proportion of A without diminishing the total, we have no opportunity to utilize any more of it.

Note for Page 196.

It is perhaps desirable to warn the student against a mistaken view which seems to have been held by more than one writer, viz. that excess of demand at the going price *of itself* tends to lift that price to a higher figure, and that excess of supply at the going price *of itself* tends to pull said price down to a lower figure. If price is to be lifted to the 56c point at all, the 56c demand must do the work; for it is plain that a 55c demand would never have any tendency to lift the price above 55c. On the other hand, if price is pulled down to 54c, the 54c supply must do the work; for it is plain that a 55c supply could never bid price lower than 55c. The truth of this will be evident if we remind ourselves of the reasons why, in our original case, price had to be just 55c—could not stay at 54c nor at 56c. It could not stay at 54c because 55c buyers would bid it above that figure both to bring out the marginal increment of supply and to exclude the first extra-marginal increment of demand. But, obviously, this upward pull of the 55c buyers would cease when actual price had reached their figure; for they want the goods only on condition that the price is as low as 55c. If, then, actual price is to be lifted above 55c, this must be done by buyers who were ready to purchase at 56c or some higher figure. Turning, now, to the other side of the case, we remember that the reason why the price could not stop at 56c or some higher figure was that the 55c sellers needed to bid it down in order to retain the 55c increment of supply. But, obviously, this downward pull of the 55c sellers would cease when price had reached their figure; since their selling was conditioned on price being as high as 55c. If, then, actual price is to be pulled down to 54c or some lower figure, this must be done by sellers who are ready to dispose of their wares at 5 cents or some lower figure. It is plain, therefore, that excess of demand at 55c does not of itself tend to pull price above that figure, and that excess of supply at 55c does not of itself tend to pull price below that figure.

As in some degree a qualification of the above, it should be remarked that, while excess of demand at 55c does not of itself

tend to lift price to any higher figure, it does constitute a reason why 56c buyers should temporarily bid price up to their figure in order to exclude 55c buyers and, so, insure getting their demand supplied. In like manner, while excess of supply at 55c does not of itself tend to pull price down to any lower figure, it does contsitute a reason why 54c sellers should temporarily bid price down to their figure in order to exclude 55c sellers, and, so, insure getting rid of their stock. Accordingly, excess of either demand or supply at actual price tends to make such actual price more or less unstable, though neither of itself tends to move actual price from where it is.

Note to Page 288.

To start with, we must be clear as to the exact nature of our problem. And, first, it is *not* to ascertain the *technical* contribution of each factor. For example, when charcoal, sulphur, and saltpeter are combined by a Crusoe to make gunpowder, and we ask how much does each contribute to the result, we do not mean: How necessary is each chemically? for, of course, each, in being necessary at all, is as necessary as every other.

In contrast the problem *is* to ascertain the *economic* contribution of each factor,—its significance economically considered. Thus, suppose Crusoe's stocks of charcoal and sulphur unlimited, but that of saltpeter so small that he must restrict quite carefully its use in making powder,—keeping his output of the latter at a figure which makes the marginal utility and value of one pound just 90 cents. Supposing his labor negligible, what utility or value will he impute respectively to the charcoal, the sulphur, and the saltpeter necessary to produce a pound of powder? Answer: to charcoal, zero utility or value; to sulphur, zero utility or value; to saltpeter 90 cents of utility or value. He will set as much store by every .76 of a pound of saltpeter as by 1 pound of powder; because having the powder depends on having that .76 of a pound of saltpeter. He will not set any store by every .11 of a pound of charcoal or .13 of a pound of sulphur, because having particular portions of either of these is not at all necessary to having the powder. *Chemically,* the powder,—under the hypothesis laid down,—is produced out of the charcoal, sulphur, and saltpeter put into it. *Economically,* it is produced from saltpeter only.

APPENDIX III.

Variations of Cases Discussed on Pages 213-218.

Case Ia.

A slight modification of our last hypothesis gives us what we will call Case Ia. In this we suppose, as before, that supply remains constant throughout a considerable series of prices, but we change the hypothesis by making demand also constant, though for a shorter series of prices within the supply series. This is illustrated in Figure 28, in which supply remains constant from 51 cents to 59 cents, and demand remains constant from 57 cents to 53 cents. Here, price can range from 53 cents to 57 cents only. It cannot go above 57 cents, because it must be as low as this in order to bring out the marginal increment of demand,—in other words because 57 cents is the marginal demand price. On the other hand, actual price cannot go below 53 cents, because it cannot go down to the next lower price, 52 cents, since this would let in too much demand; in other words, it cannot go below 53 cents because it would then get as low as the first extra-marginal demand price. In the case before us, then, actual price can range from the marginal demand price down to, but not including, the first extra-marginal demand price. Formulating this, we have the following:

Demand 000 *oz*	*Price* *cents*	*Supply* 000 *oz*
90	60	130
100	59	120
110	58	120
120	57	120
120	56	120
120	55	120
120	54	120
120	53	120
130	52	120
140	51	120
150	50	110

Principle. *If the supply schedule of any commodity remains constant through a considerable range of prices, while the demand schedule remains constant through a shorter range within that of the constant supply schedule, then price must either*

coincide with the marginal demand price or with some price

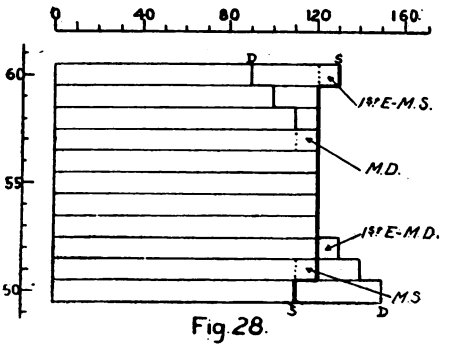

Fig. 28.

lying between the marginal demand price and the first extra-marginal demand price.

Case IIa.

The case just considered supposed demand to be constant but allowed supply to vary in the usual way. A slight modification of this gives us an analogue to Case Ia. In this modification, supply continues to be of the typical sort when compared with the demand schedule, but, after all, does not strictly adhere to the pattern:—it remains constant through a series of prices,

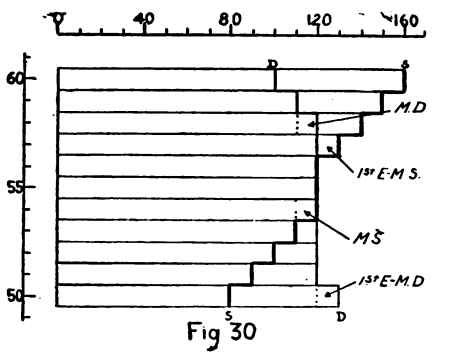

Fig 30

though the series is so short that it is altogether inside the series through which demand remains constant. In Figure 30, we have

represented such a schedule. Demand remains constant between 51c and 59c; supply between 54c and 56c. In this case, price cannot go above 56c because 57c would let in the first extra-marginal supply. On the other hand, price cannot go below 54c, since this is necessary to keep the marginal supply from dropping out. That is, the upper limit is fixed by the first extra-marginal supply price, while the lower limit is fixed by the marginal supply price. Further, the demand prices which *might* fix the limit *are not operative* in this case,—the marginal demand price being too high, 59c, and the first extra-marginal demand price being too low, 51c. Accordingly, our formula for this case is the following:

Demand 000 *oz.*	*Price* *cents*	*Supply* 000 *oz.*
100	60	160
110	59	150
120	58	140
120	57	130
120	56	120
120	55	120
120	54	120
120	53	110
120	52	100
120	51	90
130	50	80

Principle: *If the schedule of any commodity shows demand constant through a considerable series of prices, while supply is constant through a short series within the series showing constant demand, and if the equilibrium price is found within this series, then actual price must equal the marginal supply price or some price above said marginal supply price, but not as high as the first extra-marginal supply price.*